UNITED STATES DEPARTMENT OF AGRICULTURE
Bureau of Agricultural Economics

AN ANALYSIS OF PERTINENT SOCIAL AND ECONOMIC FACTORS AFFECTING LAND USE IN OVERTON COUNTY, TENNESSEE

A Study in the Southern Appalachians

By
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and
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INTRODUCTION

In the land policy of the Federal Government there is a new and increasing interest in the intangible social benefits derived

1/ At the time of the preparation of this report, Mr. Mason was State Land Planning Specialist and Mr. Gruehn Assistant Land Planning Specialist for Tennessee.

from the conservation of agricultural lands and from the establishment of national forests, wildlife refuges, and recreational areas. It is reasonable to believe that certain areas should be converted to forestry, to grazing, to wildlife, or to recreational uses primarily because in these areas the poverty, the erosion, and the increasing burdens of local government and relief are indications of maladjustments between the demands made by the people who are living on the land and the ability of the land to support these demands. Carrying out its belief, the United States Department of Agriculture has bought more than 7,000 acres of substandard farm land in Overton County, Tennessee, as one of many demonstration areas.

Among the fundamental purposes to be achieved by such action throughout the country is the formulation of policies and programs to the end that broad social objectives may be realized, that our great wealth and resources shall be fully used for the benefit of the whole people and not for a small portion at the expense of the rest, that haphazard and unregulated land use shall be displaced by intelligent and proper use, that great wastes in the present way of doing things shall be eliminated; and that young people shall be able to look ahead to lives of interest and adventure.

> "The first basic element in any program of land reform is to reestablish in our land policy a recognition of the social interest involved in the ownership and use of land. We must definitely establish the fact that the ownership of land does not include a right to use it in such a manner as will injure the interests of the community." 2/

Overton County was selected for study because of the obvious maladjustments in land use and the resulting economic and social distress which is typical of many counties in the Southern Appalachians. 3/ The basic problems of the area have grown out of maladjustments in land use and in the relation of population to the land. Until recently many people received their livelihood, or a large part of it, through the

2/ Gray, L.C. Basic Elements of a National Program of Land Reform. Paper read before the meeting of Southern Agricultural Workers Association, Nashville, Tenn., February 5, 1937. Bureau of Agricultural Economics. (Mimeographed.)

3/ See Economic and Social Problems and Conditions of the Southern Appalachians. U.S. Dept. of Agr. Misc. Pub. 205. 1935.

exploitation of the natural resources of lumber and coal. Now that these extractive industries no longer support them, they are dependent upon agriculture and relief. Some are living on land entirely unsuited to farming, largely because society has failed to provide them with an alternative, and many of those who are located on good land apparently have not learned how to farm.

In a problem area there is some conflict between the population and the basic resources upon which they are dependent. In the study here reported the economic and social reasons for general poverty and insecurity among people living on the land were examined with a view to pointing out how these conditions can be corrected and a sound rural economy can be established.

To do this an inventory of the land and the human resources was given primary consideration. Data were gathered on soils and their characteristics, history and the trends of land use, types and size of farms and efficiency of existing operating units, yields, tenancy, living standards, population, tax delinquency, relief, educational facilities, transportation facilities, markets, and other factors. For as L.C. Gray has said--

> "The complex nature of these land problems has made it necessary to develop in our land use planning work a different approach to the study of them. It is practically impossible to isolate a problem such as farm tenure from a host of other factors such as, for example, the nature of the land or the credit system. It is impractical to attempt to solve these problems of the relationship between people and the land on the basis of the individual subject-matter approach. It soon becomes evident that the whole system of land use in a given area is part and parcel of the whole pattern of climate, soil, topography, and the whole range of human institutions. Consequently, in our study of land use problems we are taking as our unit not a subject matter such as tenure or submarginal land, but a given geographical problem area -- a physical and social entity in itself." 4/

LOCATION AND GEOGRAPHICAL CHARACTERISTICS OF AREA

Overton County lies in the north-central part of the State. Livingston, the county seat, is about 100 miles northeast of Nashville, 130 miles northwest of Knoxville, and 131 miles almost due north of Chattanooga. The county is about as removed from the principal population centers and markets of the State as a county could be. The location in the State is shown in figure 1. It is bounded on the north

4/ Gray, L. C. See footnote 2.

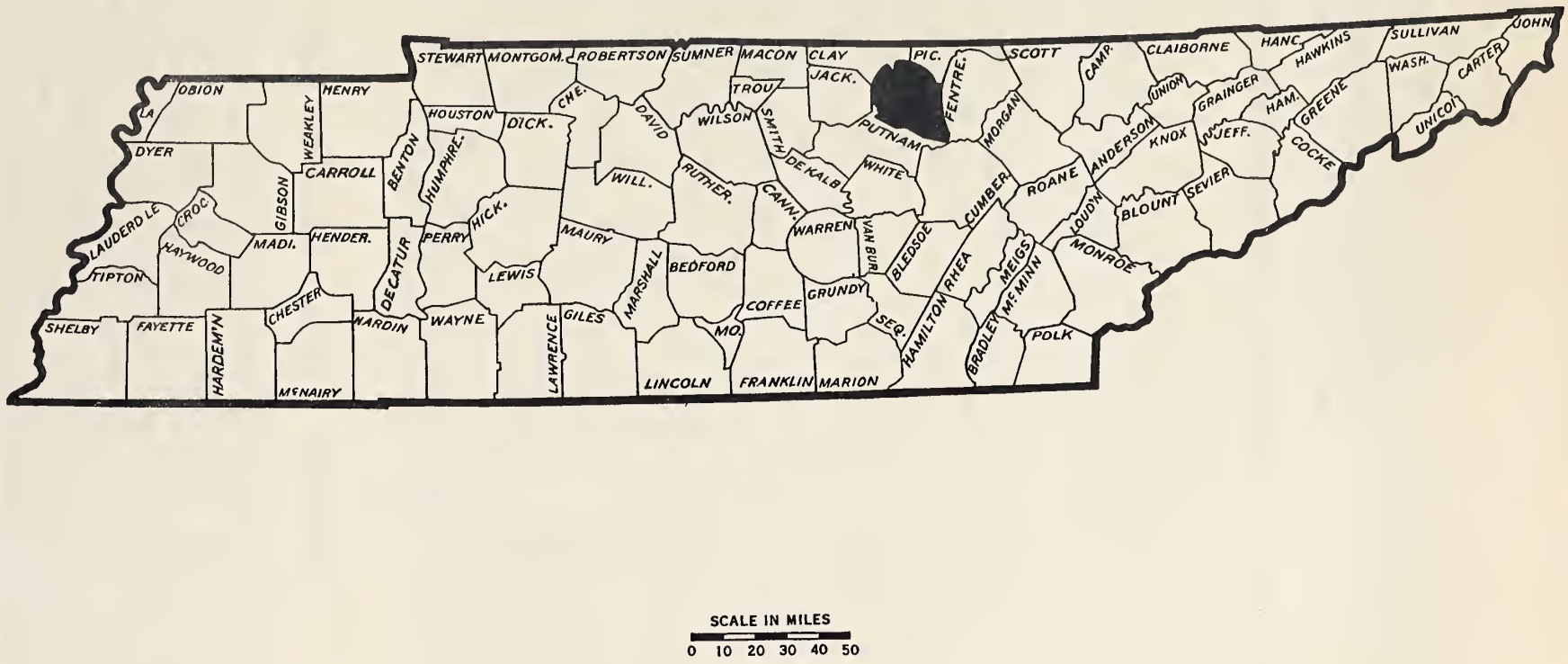

Figure 1. -- Location of Overton County, Tennessee.

by Clay and Pickett Counties, on the east by Fentress County, and on the west by Jackson County. The northern boundary of the county is about 8 miles from the Kentucky line. The total land area is approximately 285,440 acres or 446 square miles.

The general characteristics of the area may be described as follows:

> "The Cumberland Plateau and the mountains forming its western front occupy the southeastern third of the county, and a chain of outlying ridges extends out from across the center of the county to within a few miles of the northwest boundary. This region is characterized by bold, rugged mountain topography, having a range in altitude from 700 to 2,000 feet. Lying immediately west of this, and reaching out from the foot of the mountains to the county boundary, is a broad, gently rolling altitude varying from 900 to 1,000 feet. On the Highland Rim in the southwestern fourth of the county the surface is characterized by broad, level areas and low, rolling hills. Near the west line of the county, however, this plain has been dissected by the deep, narrow, V-shaped valleys of Spring Creek and Roaring River. The bottoms of these valleys approach the level of the Central Basin, which lies farther west, and their escarpments are rough and steep. To the north of this and west of the outlying mountain range previously mentioned, Mill Creek, Mitchell Creek, and their tributaries have destroyed the characteristic features of the Highland Rim, leaving a series of rough, broken ridges. North of the mountains, and along the northeastern boundary of the county, the plain of the Highland Rim again appears. This is cut by the valleys of Eagle Creek and the West Fork of Obey River and their tributaries." 5/

TRENDS IN USE OF THE LAND RESOURCES

Rugged and mountainous topography had marked influence upon the early settlement and the general development of the county. Early settlements were made about 1780 in the western edge near what is now Hilham, and as the population increased new lands were opened to the east. Hunters had been through the area before this date but no permanent settlements had been made. The county was organized in 1806 and named for John Overton, the founder of Memphis. At that time it included the territory now in the counties of Fentress and Pickett, and parts of Clay, Putnam, Cumberland, Morgan, and Scott Counties.

5/ Ayrs, Orla L. and Hill, D. H. Soil Survey of Overton County, Tennessee. U. S. Department of Agriculture, 1909.

The county seat was first established at Monroe in 1810, but was moved to Livingston, the present county seat, in 1835. The highway of these early years was the Cumberland River which is about 6 miles west of the present county line. Pioneers entered the fertile area now known as the Central Basin by floating down the Cumberland River.

As this area filled, settlers began to penetrate farther inland from the waterways. The few roads were difficult to travel. The markets for the products of this area were at a great distance. Products were loaded on flat-boats at various concentrating points and floated down the Cumberland River into the Ohio and thence down the Mississippi to New Orleans. Here the load and the boat were sold. These difficulties of transportation greatly hampered the agricultural and industrial development of the county.

Even during the development era of the railroads, this country was avoided. Only in relatively recent times have spur lines been run into the county to tap the rich coal and lumber resources. When the timber resources were depleted, the railroads were abandoned, and the branch leading from Monterey in Putnam County, serving the mining localities in the southeastern part of the county, on the Plateau, is the only railroad now being used in the county.

State highways are the backbones of the present transportation routes through this county. Route 42 crosses in a southwest-northeast direction, and Routes 52 and 85 in an east-west direction.

Development of Agriculture

Because of inaccessibility of markets the early settlers developed a self-sufficing type of farming. Emphasis of production was upon (1) raw materials, like flax, hemp, wool, and cotton for cloth making, (2) substitutes for sugar, (3) home-manufactured products, (4) other crops used principally for home consumption, and (5) utilization of woodland pasture, in the nature of "free range" for production of cattle and hogs which were later driven in herds to Kentucky and Virginia. It is reported that in 1800 the hillsides near Hilham grew such luxuriant wild-pea vines, upon which stock fattened, that it was unnecessary to feed hay or grain in summer or winter. 6/ Soon after the Civil War hemp-growing was discontinued, production of sugar substitutes declined about this time, flax had practically disappeared by 1890, and wool production declined sharply after 1900.

In 1874, the agricultural situation of the county was described by Killebrew 7/as follows:

6/ Goodpasture, A.V., and Goodpasture, W.H. Life of Jefferson Dillard Goodpasture, Cumberland Presbyterian Publishing House, Nashville, Tennessee, 1897.

7/ Killebrew, J.B. Resources of Tennessee, Nashville, Tennessee, 1874. Pp. 870-71.

"The leading crops, in the order of their importance, are corn, wheat, tobacco, oats, rye, cotton, potatoes, and turnips. Very little of any of them, except tobacco, is carried out of the county. The cultivation of this staple is increasing, and it bids fair to be ere long the most important farm product of the county. But little attention is paid to grass. Corn fodder is chiefly relied on for winter provender. It is estimated that less than one-tenth of the cultivated lands is in grass. The little that is sown is chiefly for mowing. Clover and herdsgrass are the common varieties, but there is a little timothy and orchard-grass. Good pastures are by no means common, but the best farmers are giving more attention to them. Clover and herdsgrass are preferred for this purpose. The principal cause why pastures have been so much neglected, is that the native grasses have heretofore afforded abundant pasturage, but when the country becomes more densely populated, this can no longer be relied on. Manuring with green crops is almost unknown. Sometimes an old sod or a clover lea is turned under but it is done rather to destroy weeds that have taken possession of the meadow, or for the purpose of raising a crop of grain, than with a view to benefiting the soil. In sowing wheat, the common practice is to plow it in among the corn ...

"As in most other counties in Tennessee, the rearing of live stock is the leading and most profitable business within the range of agricultural pursuits. Grass can be produced more readily and with less labor, and will yield a better return per acre than any other crop. There are many hill-sides too rocky or too steep to be tilled, where blue-grass or orchard-grass would grow with great luxuriance. The range on the mountains and in the barrens, where the land is too poor to be cultivated with profit, affords almost unlimited pasturage for about half the year, so that with a little meadow land on each farm to furnish winter provender, cattle and other stock can be raised with but little expense. Most of the stock is scrub, and until recently, but little effort has been made to improve it. There is but one thoroughbred horse, we believe, in this county ... Owing to the great destruction of sheep by dogs, but few are raised. The number killed annually is at least ten per cent of the entire number, and the county is thus robbed of hundreds of dollars worth of property" ...

This area suffered considerably during Civil War times, although no major battles were fought here. It was the scene of guerrilla warfare the final effect of which was devastating because crops, live-stock, and all things of value were confiscated by both sides. Agri-cultural recovery was later hindered by reconstruction troubles. It

has also been reported that the freeing of slaves necessitated reduction in the size of farms. Incidentally, slaves were never numerous in this county, there being but 1,185 Negroes in 1860, and by the next Census period, 1870, this number had dropped to 550.

Trends in land use before 1880 are difficult to trace accurately from Census data, for Overton County underwent numerous changes in size and shape before this date as other counties were formed from its area. In 1880 8/ there were 1,812 farms, comprising 254,391 acres, or 89 percent of all the land area of the county. Since then some land has been taken out of agricultural production and is being held for timber and mineral developments. By 1935 the number of farms had increased 87 percent over the 1880 figure. The trend in land in farms and number of farms is shown in table 1 and figure 2. It should be noted that the percentage of increase in the number of farms by Census periods since 1880 has been irregular.

As the number of farms increased without an increase in total acres in farms, the size of farms had to decrease. In 1880, the average size of farms was 140 acres, but it had declined to only 62 acres in 1935, or 56 percent over a period of 55 years. According to the 1935 Census, 55 percent of all farms were less than 50 acres in size, and 80 percent less than 100 acres in size.

Table 1.-- Increase in Land in Farms and Number of Farms
Overton County 1880-1935 1/

Year	Land in farms		Number of farms	
	Acreage	Percentage increase or decrease	Number	Percentage increase or decrease
	Acres	Percent	Number	Percent
1880	254,391	-	1,812	-
1890	213,829	- 16.0	1,830	1.0
1900	235,615	10.2	2,214	21.0
1910	214,801	- 9.0	2,371	7.1
1920	218,782	1.9	2,714	14.5
1925	216,317	- 1.1	2,778	2.4
1930	208,924	- 3.4	2,724	- 2.0
1935	211,675	1.3	3,392	24.5

1/ Based on the Census.

8/ All calculations were made on basis of the present area of the county (446 sq. miles). Reductions from Census data were made in the same proportion that the improved acreage of the county has been reduced in the formation of other counties.

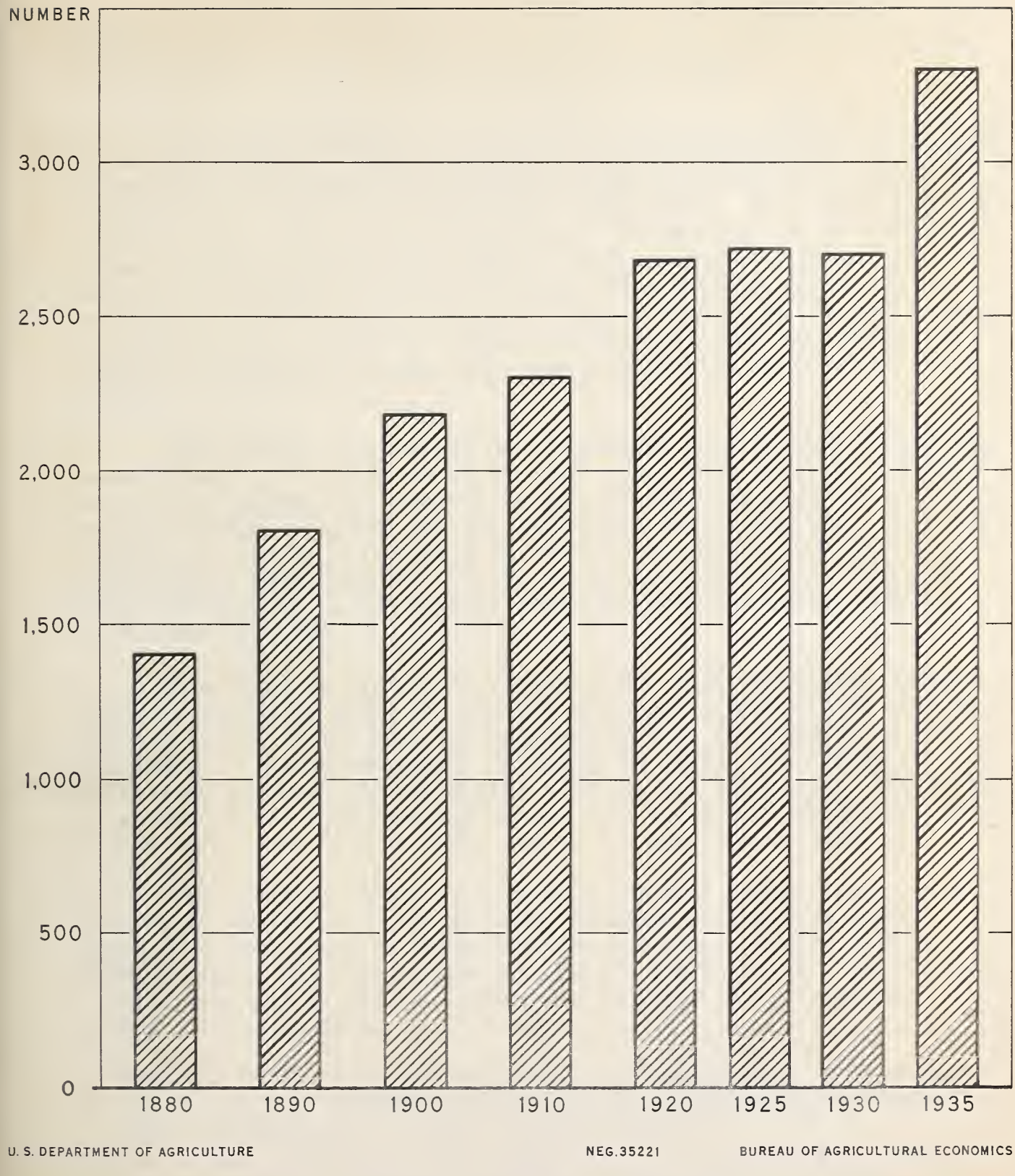

Figure 2. Trend in number of farms, Overton County, Tennessee, 1880-1935.

The steady reduction in size of farms beyond what appears to be economical units has forced rural people to rely more and more on part-time employment off the farm for a considerable part of their income. This situation hastened the depletion of the timber.

The large increase in the number of farms in 1935 was due to the back-to-the-farm movement of migrant sons and daughters of the farmers. Homesteads were divided and some new lands were cleared to enable the economically distressed to get back to the earth. In a study made in 1936,9/ it was found that 70 percent of the increase in the number of farms in Overton County from 1930 to 1935 was due to non-farm people going onto the land. They had returned from Detroit, Akron, Toledo, Pontiac, and Old Hickory and from the local mines. Of the new farms 10 percent were created by bringing undeveloped land into farms, 50 percent by dividing existing farms, and 40 percent by reoccupation of abandoned farms.

The number of livestock has fluctuated considerably during the last 85 years but the trend in the number per farm has been decidedly downward. Reduced to animal-units 10/, 17,347 were reported in 1850, but this number declined for the next three Census periods. This was followed by the highest figure on record - in 1890 - when 20,581 animal-units were reported. There was another decline in 1900 and 1910, followed by an increase in 1920 and 1925; the lowest figure, 12,537 came in 1930.

The trend in numbers of workstock has been definitely upward, reaching a peak in 1925; the numbers increased from 3,217 in 1850 to 5,615 in 1925. Since then the decline has been so sharp as to put the number of workstock nearly as low as in 1850. The number of horses has declined but the number of mules has increased. The number of workstock per farm remained around 2 in the period 1890-1925, declined to 1.6 per farm in 1930, and to 1.1 per farm in 1935.

The trend in number of milk cows has been upward, increasing from 2,172 in 1850 to 4,464 in 1935, although during this period there were some years in which declines occurred, notably between 1920 and 1925, when the number fell from 4,168 to 2,614. The number of milk cows per person has varied little since 1870, averaging around one-fourth head.

9/ Mason, John E. Current and Recent Land Occupancy in Tennessee. Land Use Planning Section, Land Utilization Division, Resettlement Administration. 1936. (Unpublished.)

10/ An animal-unit is equal to either 1 mature work animal, 2 colts, 1 mature cow, 2 heifers, 4 calves, 7 ewes, 14 lambs, 5 hogs, 10 pigs, or 100 chickens.

The number of other cattle, however, has fluctuated violently within definite cycles. The number declined from 4,512 head in 1850 to 3,132 head in 1870, increased to 6,167 head in 1890, declined to 3,332 in 1910, increased to 6,741 in 1925, while in 1935 the figure stood at 4,807 head. On a per-farm basis there has been a great decrease since 1850. The tendency is for "other cattle" to fluctuate more than the other types of livestock, owing to price fluctuations and to the fact that they are less essential to the maintenance of the family in a self-sufficing community.

The numbers of sheep increased between 1850 and 1870, reaching a peak of 11,011 head in 1870, but has steadily declined since then to 1,664 head in 1935.

Hogs declined from a high of 31,350 head in 1850 to 15,765 in 1860, remained relatively constant through 1925 (12,495), and then dropped 62 percent, to 4,845 head in 1930. By 1935, the number had increased to 7,137.

The number of chickens in the county has varied greatly. They increased from 51,978 in 1880, to 140,401 in 1890; in 1900 there were 41,800 and practically the same in 1910, but since 1920 the number has remained near 129,000. There was the same number (38) per farm in 1935 as in 1880. In the early 1920's Overton County ranked very high in the State as a poultry-shipping center.

Fluctuations in the long-time trend of acreage in crops have been marked. The trend in total acreage has been upward, rising from 50,532 acres in 1889 (earliest reported) to 59,357 acres in 1934, while the amount available per farm is less now than in 1879. The highest number of acres in crops was reported for the year 1919, when 61,891 acres were reported for all crops.

Corn has always been the principal crop. Figure 3 shows the conditions under which some corn is planted. The percentage of all crop acres in corn has varied in the county from 57 percent in 1889, the lowest recorded available statistics, to 65.5 percent in 1919 and 1924. Acreage devoted to corn accounted for 66.2 percent of all cropland harvested in 1924, and 63.3 percent both in 1929 and 1934. This relatively large acreage devoted to corn does not necessarily mean that this county is a dominantly corn-producing area, nor is it a corn-hog area. Using an average of 6 Census periods, 11/ Overton County ranks 38th among the 95 counties of Tennessee in acreage devoted to corn, but it ranks 90th in yields per acre, and 61st in total number of bushels harvested. In the 10-year period, 1923-32, Overton County ranked 92nd in yield per acre among the counties of the State. The average yield was 15.4 bushels of corn per acre during

11/ 1889, 1899, 1909, 1919, 1924, and 1929.

this period, which seems to be about the long-time average. 12/ (See fig. 3.)

The trend in acreage in small grains has been downward, dropping from 16,946 acres in 1889 to 2,702 acres in 1934, or a decline from 33.5 percent of all crop acres in 1889 to but 4.5 percent in 1934. Acreage devoted to wheat dropped from 7,183 acres in 1879 to 1,031 acres in 1924, but increased to 2,702 acres in 1934. Acreage in oats dropped from 10,177 acres in 1889 to 100 acres in 1924, but rose to 332 acres in 1934.

The percentage of crop acres in hay has risen consistently by Census periods from 5 percent in 1889 to 21.8 percent in 1934.

The acreage and production of white potatoes is small, production being primarily for home use, but the trend since 1889 has been upward, rising from 328 acres at that time to 583 acres in 1934. In 1929 716 acres were reported. The production has varied considerably, from 12,264 bushels in 1899 to 58,571 bushels in 1929.

The lowest acreage reported for sweetpotatoes was 302 in 1924 and the largest was 540 in 1929. Production has varied between 21,000 and 80,000 bushels.

Tobacco production has never been large in recent years, contrary to the prediction of Killebrew in 1874. The crop has declined instead of becoming the most important farm product in the county. The highest yield reported was 119,230 pounds in 1869 but production decreased to a low of 10,262 pounds in 1924, and increased to 49,612 in 1934. Tobacco is grown primarily for home and local consumption.

Fruit production in the county has no commercial importance; in fact, there is not enough for home use. Of 130 farms, only 45 percent reported harvesting any fruit during 1936.

The trend in the yield of important crops is given in tables 2, 3, and 4.

12/ U.S. Department of Agriculture Cooperating with the University of Tennessee. 10-Year (1923-32) Average Acreage and Yield by Counties. Mimeographed release, August 30, 1936.

Figure 3. -- Planting corn on a hillside in Overton County, Tennessee.

Table 2. -- Trend in Yield of Corn, Hay, and Rye in Overton County Compared with the State Average, 1889-1934

Crop year	Corn		Hay		Rye	
	State average	Overton County	State average	Overton County	State average	Overton County
	Bushels	Bushels	Tons	Tons	Bushels	Bushels
1889	21.9	17.9	1.1	.8	6.4	4.6
1899	19.9	13.8	.9	1.0	6.5	4.0
1909	21.5	13.8	1.0	.8	7.0	4.4
1919	21.4	14.1	.9	.9	6.1	3.5
1924	21.0	14.8	.8	.6	7.6	5.7
1929	22.7	16.3	1.0	.7	6.5	5.3
1934	21.2	16.0	1.0	.8	6.9	4.3

Table 3. -- Trend in Yield of Wheat, Oats, and Barley in Overton County Compared with the State Average, 1889-1934

Crop year	Wheat yield		Oats yield		Barley yield	
	State average	Overton County	State average	Overton County	State average	Overton County
	Bushels	Bushels	Bushels	Bushels	Bushels	Bushels
1889	9.4	4.2	12.5	8.8	17.8	7.0
1899	8.5	5.2	11.5	7.6	13.4	4.0
1909	10.5	7.1	14.0	8.2	21.0	--
1919	9.2	4.7	21.0	8.0	16.0	6.0
1924	10.0	7.8	18.2	11.0	16.6	--
1929	8.9	7.4	15.6	13.4	18.8	--
1934	10.2	6.4	16.0	10.1	15.8	8.2

Table 4. -- Trend in Yield of White and Sweet Potatoes in Overton County Compared with the State Average, 1889-1934

Crop year	Sweet potato yield		White potato yield	
	State average	Overton County	State average	Overton County
	Bushels	Bushels	Bushels	Bushels
1889	83	87	76	86
1899	69	74	86	52
1909	97	119	71	82
1919	112	139	86	79
1924	89	90	69	79
1929	102	97	81	82
1934	102	167	77	94

Development of Forest Industries

Early reports of Overton County gave much space to the fine timber stands. Only the lowland coves had the famous canebrakes that gave Daniel Boone and other pioneers so much trouble. One of the most fertile coves in the county, now called Copeland Cove, was swapped for a rifle, according to legend. The price of a similar cove to another settler was an ox and a rifle, but the settler claimed that he could not plow the canebrakes so he swapped the ox for a whole mountainside. He could kill and burn the trees and hoe on the mountain land much more easily than he could clear the cane from these coves. He could do without the ox, but not the rifle, which was needed for protection as well as to kill game.

In the early days of settlement timber was a liability. There was no market whatsoever for lumber, and all the land for crops had to be cleared. The process of destruction went on in the usual pioneer way of girdling the trees, which later were to be cut down and burned. Some of these trees were reported to be 6 to 8 feet in diameter.

No figures are available to show the progress in clearing the timber of the county for commercial purposes, but it is reasonable to believe that clearings were first made principally in the valley and cove sections. The farming system followed a cycle of killing trees, planting crops until the land would not produce any more, and then going into another belt of "new ground" and repeating the destructive cycle. The land first cleared was allowed to revert to weeds and shrubs for a period of years to rebuild itself. This type of farming is still evident in much of the county.

Extensive lumbering operations began in Tennessee after the Civil War, but commercial lumber production did not begin in Overton County until the 1890's, mainly because of rugged topography and isolation. This virgin area was not opened up until supplies elsewhere had been almost exhausted, until railroad facilities came near the county, and until the prices of lumber were high enough to warrant the high costs of haulage.

In the eastern part of the county some timber was floated down the West Fork of the Obey River, thence into the Cumberland River, finally reaching the market at Nashville. In the other parts of the county all timber was hauled by teams to Butler's Landing, about 6 miles west of Hilham. The prevailing wage for hauling was $1 for a load of about 500 board feet, the round trip requiring about 12 hours. By 1896, the railroad was built to Algood, just a few miles south of the Overton County line. This stimulated the influx of sawmills so that the lumber could be shipped out in more concentrated form. Thus the opening up of new markets, made possible by new transportation facilities, made it profitable to market the lower-priced lumber, and

thus a vast resource, heretofore practically useless, suddenly became of great value.

Before this, black walnut for a time had been the only timber for which there was a profitable market; then poplar became the principal lumber used. Old lumbermen tell of needing 12 oxen to pull giant poplar logs down to the mills.

In 1906 a railroad was built by the county from Livingston to Algood, where it tied in with the already-established system. It then became profitable to cut and market other types of timber, especially the oaks, in the form of heading materials, and the acid woods.

Most of the early mills were "shoe-string" enterprises, similar to those now operating. They bought logs and sawed them, and then had to stop operations until all the lumber was sold and hauled to market. Apparently very few mills built up inventories of lumber or operated to any considerable extent except when prices for lumber were high.

Until recent years the lumber industry brought in considerable wealth to owners of timber and to operators of mills. The collapse of the lumber market in the late 1920's bankrupted nearly all the companies and those who had invested in them.

In the past only three wood products have been processed in the county - spokes, barrel heads, and handles. Only handle blanks are being made now. In 1925, a spoke factory at Livingston was turned into a factory for making finished handles and has since become a subsidiary of an establishment at Cookeville where the blanks are sent for finishing. The wood for the handle-blank factory is cut and delivered to Livingston by farmers. The plant operates from November to July, employing 12 men, and its weekly pay roll averages about $175.

The sawmills in the county, of which there are about 30, employ approximately 200 men on rainy days and during some of the winter months.

Development of Coal Mining

Overton County lies along the northwestern border of the coal field of Tennessee; thus this coal field is confined to the southeastern part of the county and consists of a number of areas more or less detached by erosion from the main mass of the Cumberland Plateau. The largest coal-bearing area is a long spur from the Plateau that projects northward between the east and West forks of the Obey River.

The isolated coal measures lying west of the West Fork are small in extent and are surrounded by such rough country that they have always been without transportation, and so have been used only locally. They have never had any commercial importance.

The one coal area that is of commercial importance in the county extends from the Putnam County line northward and eastward between the two forks of the Obey River into the southwestern part of Fentress County. Extensive mining has been going on during past years around Wilder and Highland Junction (in Fentress County) along the immediate boundary between Overton and Fentress Counties. Several active mines dug coal in Overton County but hauled it out to daylight at a mine mouth situated in Fentress County so that county is accredited with considerable production that really comes from Overton County.

The extent of this coal field is described by Glenn 13/ as follows:

> "Owing to the very irregular outlines of the main coal-bearing area no very accurate determination of its exact size is possible. Its area is, however, approximately 54 square miles. From this a deduction of 5 to 10 square miles may be made for irregular marginal projections too narrow to be developed and there are left some 45 square miles where coals could be worked commercially if the seams are found of sufficient thickness. It is known that in part of this area there is no seam of workable thickness. The extent of such thin areas is not known and so no very close estimate can be given of the probable area of workable coal in the county. Perhaps 20 square miles may be a liberal guess, though this may be either 100 per cent too large or 50 per cent too small."

A few so-called country banks (hillside pits, openings) had been opened and were in operation before 1900. They furnished fuel for local use, but no active mining development was possible until the Tennessee Central Railroad built its branch line to Crawford and Wilder. The State mining reports for 1901 and 1902 are merely very brief statistical summaries; Overton County is reported as producing 680 tons in 1901 and 3,447 tons in 1902. In 1902 the Brier Hill No. 1 Mine at Crawford was opened by a New York company which apparently bought up much of the land and induced the Tennessee Central Railroad to run a spur line up to Crawford. This company built and owned the town and practically everything in it.

13/ Much of the information on mining is from a report by Glenn, L. C. The Northern Tennessee Coal Field. Bulletin 33-B, Division of Geology, State of Tennessee, Nashville. 1925.

By 1903, the total coal production for the county was 84,930 tons, and that year really marked the beginning of active commercial production. In 1905 a railway bridge was built across the river at Obey City to reach mines on the east. Mining has since been carried on there on both sides of the river in a more or less active way but no large operations have developed. For some years after 1903 the chief mining activity centered about Crawford. In 1909 the Laurel Creek mine and in 1910 the Overton mines were developed near Davidson. In 1919, Bill's Branch Mine was opened at Lovejoy and the Gooch Mine at Davidson.

All the mines were operated at full capacity during the years of the World War, but by that time the Crawford mines were exhausted and the company opened up a still larger mine at Twinton, about 5 miles from Crawford and near the eastern edge of the county line. This new mine -- two mines, in fact -- gave its name to the village of Twinton. These mines were electrified and the most modern equipment was installed.

In 1929, the Brier Hill Collieries Company employed 215 men, paying $258,686 in wages and producing 270,099 tons of coal. In 1930 they produced 251,558 tons of coal, employing 368 men whose wages amounted to $227,675. In 1933 only three "wagon mines" were operating. They produced 2,550 tons, which sold for $4,845. Thirty-six men were employed for a total wage of $4,220. 14/ Production at the present time is on about the same level as in 1933.

The fundamental cause of the collapse of coal mining in Overton County was the unfavorable competitive position of its mines combined with the general slump in the bituminous coal market, but other factors had influence, as unsatisfactory living and working conditions, the scrip and commissary system, and related situations.

The coal fields of this county are not in a strong competitive position to supply markets even within the State. Difficulties of transportation are such that many of the major cities get most of their coal from Kentucky. This is especially true of West Tennessee. The mines in Overton and Fentress Counties supply the city of Nashville, which is the natural market for this area.

It is doubtful whether Overton County itself ever received much benefit from this natural resource. Only recently has a passable road been built to the coal section from the valley section of the county. Before this, Crawford, and in fact the entire Plateau section of the county, was isolated from the lowland agricultural section. All trade of the coal section was done in Crawford and other mining communities, or at Monterey, in Putnam County, the outlet for coal and timber. Thus

14/ Annual Reports, Tennessee State Department of Labor.

the agricultural section of the county was deprived of a market for its products, and its stores were deprived of normal trade from miners. Only the smallest mines were locally owned; thus even the profits made from natural resources were drained off to other parts of the Nation. Apparently the only income the rest of the county received from this section was that derived from taxation.

INVENTORY OF THE LAND AND HUMAN RESOURCES

Soils: Description, Quality, and Present Condition [15]

With the exception of a limited amount of bottom land, the soil of the county consists of residual material. The soils of the Highland Rim and the valleys which intersect it are mainly limestone, but contain a great deal of chert and siliceous impurities. These have given rise to gray and red silty soils. The Cumberland Plateau and its escarpment and outliers consist of similar limestone formations capped with sandstone and shale formations which have given rise to gray soils characterized by a greater percentage of sand than is found in the soils of the Highland Rim. The variable alluvial material of the narrow stream bottoms was mapped in 1909 as Meadow. Table 5 shows the areas of the different soils as they were mapped at that time.

Nearly one-half (46.5 percent) of the soils of the county are Clarksville. Clarksville silt loam is one of the most extensive types to be found, occurring in the western and southwestern parts of the county and in the northeastern part in large areas, although small areas occur elsewhere. The silt loam is gray to light yellow, varying in depth from 8 to 12 inches. The topography is usually level to rolling, but is hilly in some places. Drainage is adequate; fertility moderate. Some areas of this soil have been well cared for; others have been neglected and mistreated to the extent that reforestation will be necessary to reclaim them. The original forest growth on this soil consisted of white oak, post oak, red oak, hickory, black gum, sweet gum, chestnut, persimmon, dogwood, and poplar.

The Clarksville stony loam, a gray to light-yellow or light-brown soil, comprises 18.3 percent of the area of the county. This soil occupies rough, broken hills and steep valley slopes, the greater portion being found in the northern part of the county. Most of this soil is unsuited to cultivated crops. The narrow strips adjacent to farm lands can be utilized by the farmers as pasture and forest lands, while the larger areas in the northern part of the county should be returned to forest and become a part of the Standingstone Forest Project.

15/ Much of the material on soils is from the Soil Survey of Overton County, Tennessee. U.S. Department of Agriculture. 1909.

Table 5.-- Soils of Overton County, Tennessee 1/

Soil	Acreage in each type	Percentage in each type
	Acres	Percent
Clarksville silt loam	78,272	28.2
Dekalb stony loam	67,840	24.5
Clarksville stony loam	51,008	18.3
Dekalb silt loam	17,984	6.5
Decatur stony loam	17,600	6.3
Dekalb sandy loam	13,824	5.0
Rough stony land	12,928	4.7
Decatur loam	11,584	4.2
Meadow	4,672	1.7
Hagerstown stony loam	1,344	.5
Guthrie silt loam	256	.1
Total 2/	277,312	100.0

1/ A generalized soil map of the United States, dated 1931, published in the Atlas of American Agriculture shows the following soils in Overton County: Clarksville, Muskingum, Hartsells, and Huntington. The soils called Dekalb in 1909 are those now listed as Muskingum and Hartsells.

2/ The Bureau of the Census gives the approximate land area as 285,440 acres.

In 1909, small scattered areas were mapped as Decatur loam and Decatur stony loam. (According to soil specialists, these areas would probably be called Baxter at the present time.) These soils are reddish-brown to red, 8 to 12 inches deep. Timber growth, drainage, and fertility are little different from the Clarksville areas. The two soils are usually associated with each other.

Limited areas of rough stony, Meadow, Hagerstown, and Guthrie soils have been mapped. They are insignificant in the area as a whole, but are important on some individual farms.

In 1909, the Dekalb types (shown in the Atlas of American Agriculture as Muskingum and Hartsells) occupied 36 percent of the county. The silt loam of this type consists of 8 to 12 inches of gray to grayish-yellow soil, and contains a small amount of the finer grades of sand. The soil comes from a fine-grained brownish or yellowish sandstone. Drainage in some places is a problem for not only is the land very level, but the underlying sandstone rocks hinder drainage. This soil is poor in fertility, but with proper treatment some acreages

can be used for farming. It is very susceptible to drought.

The Dekalb stony loam and Dekalb sandy loam which prevail in the southeastern part of the county are now largely forested with second-growth timber and should so remain.

Sink holes form a serious problem of the limestone soils on the Highland Rim. Some have openings that allow the surface water to drain, but others have formed ponds. It is practically impossible to grow a winter cover crop in any of them.

On the basis of relative productivity, the Director of the Tennessee Agricultural Experiment Station has classified the land of the State into five classes. The classes and percentages for Overton County are as follows 16/:

Good to rich	10 percent
Medium	24 percent
Marginal	15 percent
Submarginal	14 percent
Woodland not pastured	37 percent

Practically all of the woodland not pastured is submarginal for farming. This class plus the submarginal class makes a total of 51 percent of the county unsuited to agriculture. There is an additional 15 percent of marginal land, making a total of 66 percent of the county definitely marginal or submarginal. It is obvious that much of this marginal land is found on farms which, taken as a whole, cannot adequately support the people living on them. It is also true that some of the marginal or even submarginal lands are in small acreages and on farms which, considered as a whole, may be classified in semi-intensive or intensive categories.

Cropping and Conservation Practices 17/

A survey of 109 farms in Overton County made in the summer of 1936 indicates that all the farmers are following some type of soil-conservation practice to varying degrees and with varying degrees of success. Approximately 95 percent of the farmers have done gully-control work on their farms, which indicates that erosion is a problem on almost all the farms. Table 6 shows the number carrying out each kind of conservation practice and the acreage involved.

16/ Mooers, C. A. Unpublished data on file with the Tennessee Agricultural Experiment Station, Knoxville, Tennessee.

17/ The information on conservation practices is based largely on a report by Allred, C.E., and Esry, Dalson H. Soil Conservation Practices in Actual Use by Farmers on Eastern Highland Rim 1932-1936. Agricultural Economics and Rural Sociology Department, Agricultural Experiment Station, University of Tennessee, Knoxville, 1937. (Mimeographed.)

Table 6.-- Summary of Soil Conservation Practices on 109 Farms in Overton County, 1936 (7,223 acres of cleared land) 1/

Soil conservation practice	Farms reporting each practice		Acreage involved		Farms needing soil conservation practices	
	Number of farms	Percentage of all farms	Number of farms	Percentage of all cleared land on farms	Number of farms	Acreage
	Number	Percent	Number	Percent	Number	Acres
Gully control	104	95.4	--	--	--	--
Contour tillage	83	76.1	1235	17.0	104	1974.5
Pasture established	77	70.7	906	12.5	75	1139.0
Cover crops	61	55.9	780	10.8	108	2155.0
Chemical fertilization	60	55.0	--	--	109	6886.5
Natural reforestation	28	25.7	271	3.7	--	--
Lining	23	21.1	303	4.2	108	6810.5
Pasture treatment	18	16.5	177	2.4	100	1803.5
Terracing	7	6.4	107	1.5	106	4098.0
Contour furrowing	4	3.7	28	0.4	76	926.5
Strip cropping	2	1.8	14	0.2	16	154.0
Reforestation	--	--	--	--	6	65.0

1/ Allred, C. E. and Esry, Dalson H. Soil Conservation Practices in Actual Use by Farmers -- Eastern Highland Rim 1932-1936. (See footnote 17.)

It should be remembered that 211,675 acres, or 74 percent of the total land area, are in farms. Of this, woodland occupies 43 percent of the area; 27 percent is in harvested crop land, 15 percent in pasture, 8 percent idle, and the remaining 7 percent is classified as miscellaneous. More of the cleared land is used for corn production than for any other purpose. Approximately one-half of all the cleared land is in row crops or is idle. Thus, in spite of the fact that much of the land is rolling enough to make erosion a serious problem, only half of the cleared land has a soil cover furnished by small grains, or annual and perennial hays, or pastures.

This county has heavy rainfall, especially during the winter, a topography conducive to erosion, and a cropping system made up very largely of corn and idle land. Corn, which constitutes 63 percent of the harvested crops, averaged only 15.4 bushels per acre over the 10-year

period 1923-32. Only three other counties in the State had a lower corn yield than this, and only one county in the State had a lower crop-yield index than Overton County's 69.56. 18/ These facts indicate that there is a serious soil-conservation problem in the county.

In this survey it was found that cropping systems varied from the farm on which all the cultivable land was in corn or was idle (bare except for weeds and wild grasses), to the farm where all the land was utilized for growing legumes and small grains in addition to corn.

Row crops, chiefly corn, occupied a greater portion of the land than did any other type of crop. A much higher proportion of the cleared land on the Hartsells soils was in corn than on either the Clarksville or Baxter soils, but the farms on Baxter soils had a much higher percentage of the total crops in small grains.

Some very definite shifts have taken place since the farmers have become acquainted with lespedeza. Acreages in this crop have increased tremendously since 1932, the increase being made at the expense of other hays and idle land.

Cover crops grown on all types of soil in this county consist almost entirely of small grains. Most of these are sown in the fall. The acreage of crimson clover, hairy vetch, and other winter legumes as cover crops was practically non-existent previous to the soil-conservation program of 1936, but about 500 acres have been seeded to crimson clover since then.

Green manure crops have almost never been used. On the 109 farms, 43 acres had been plowed under in 1936, but only four acres had been done so in 1932.

Pasture is second only to row crops in the use of cleared land, yet the percentage of land in pasture has tended to decrease, primarily because improved pastures have not been widely used and there is a tendency to let the wild grasses grow.

On the better farms, however, it was found that lespedeza alone, or lespedeza mixed with orchard grass, red top, or timothy, makes up the larger part of temporary pastures and improved permanent pastures.

Some form of pasture establishment had occurred on 77 farms, or 71 percent of those surveyed. The lack of limestone or fertilizers

18/ Hendrix, W. E. Influence of Soils on Economic and Social Factors. Thesis, University of Tennessee. June 1936. (Unpublished.)

on pastures is striking, except for a small quantity of fertilizer applied on the nurse crop at the normal rate of application. The usual practice is to try to establish pasture on old cropland, often the most non-productive cultivated land on the farm. Another feature is that three-fourths of the farmers depend upon lespedeza, either altogether or as a major part of the seeding mixture, for permanent pasture seedings in spite of the fact that lespedeza is a short-season, annual plant.

Allred and Esry 19/ state in their report that

> "Many farmers in this region fail to realize that they can receive almost as great benefits, both from immediate livestock returns and from a long time soil conservation standpoint, by improving pasture land as by improving crop land. Pasture treatment was attempted on only 16 per cent of the farms surveyed. Only one man reported the use of limestone and fertilizer to improve his pasture, and no instance was reported in which manure was spread over the pasture. Mechanical treatment, such as mowing and sub-soiling, is equally scarce, partly due to the rough, rocky, and steep land. Old pastures, after they have been seeded five or six years, and have become extremely weedy and brushy with only a faint trace of the original seeding remaining, usually are plowed up and cultivated in corn for a few years to kill the weeds and brush.
>
> "Many farmers are of the opinion that pasture land washes as badly or worse than cultivated land. Usually their pasture is poor, because the land has been farmed too hard or been subjected to sheet erosion too long to be productive enough to grow a sod that will hold the land."

Other soil-conservation practices include the use of limestone, commercial fertilizers, manure, contour tillage, contour furrowing, strip cropping, diversion ditches, protected waterways, mechanical structures for gully control, terracing, and natural reforestation.

An investigation of liming practices showed that 21 percent of the farms surveyed had used lime. Only 4.2 percent of the total cleared acres surveyed had been limed. However, farmers of the county have been made conscious of the benefits of liming through the Agricultural Conservation program. The irony of the whole situation is that limestone outcroppings are plentiful, and crushed limestone could be had at very low rates, yet the inducement of payments was necessary to bring farmers to use an available natural resource to improve their own farms. According to County Agricultural Agent, W. O. Sewell, many

19/ Allred and Esry, Op. cit.

of the farmers earned the larger part or all of their soil-conservation payments by using limestone, of which 4,500 tons were used in 1936, and 10,000 tons in 1937.

The present use of commercial fertilizer is limited to applications made at seeding time on corn and small grains. These applications vary from 100 to 250 pounds per acre. The kinds most commonly used are 16 percent superphosphate and 0-10-4 (nitrogen, phosphate, and potassium in order named). There are two dealers who are jobbers for all fertilizer sales in the county. One sold 107 tons of fertilizer in 1936, and the other 110 tons. Almost the same quantity was sold in 1937. In 1937, the Tennessee Valley Authority made available almost 60 tons of triple superphosphate for experimental purposes.

Very little use is made of barnyard manure for the supply from small numbers of livestock is very limited and the farmers take little care of it.

Controversy has arisen as to whether contour tillage practiced on 76.1 percent of the farms surveyed increases the costs of production. On steep slopes and short cross-hills, it tends to make short point rows, but on the less steep and choppy slopes it is easier for man and beast to follow the contour rather than the up-and-down slopes.

Only 2 of the 109 farms surveyed used any type of strip-cropping. Both farmers were pleased with its effects and possibilities. The only difficulty appeared to be that its use is limited on livestock farms, as strips of grass crops could not be pastured while growing other crops.

A few instances were noted of diversion ditches, built to protect land at a lower level from huge quantities of water that gather above it. Farmers in this county have considerable trouble in controlling water that gathers from large acreages on the slopes. It is often concentrated in narrow hollows or ravines that empty into cleared fields, and the fan-shaped deposits of cherty, silicious materials cause much damage to the tillable lands on some farms. For gully control farmers relied almost entirely upon revegetation and upon filling gullies with brush, cornstalks, weeds, manure, and straw. No particular attempts are evident to make these fillings in the form of dams, or to fasten these brush materials securely in place.

Only three farms had terraces built in a way closely approaching that approved by terracing experts. Natural forestation was the only type of reforestation found on the farms surveyed; but some of the farmers of the county earned their soil-conservation payments by planting locust trees. Natural reforestation usually consists of volunteer growth of cedars, black locusts, pine, sassafras, and persimmon trees.

Land Classification

A reconnaissance land classification of the county was made as the first step in this study. This report shows only the broad characteristics, even though it is supported by a large mass of descriptive information for numerous small areas, farm-management records, income and living-standards data, relief statistics, and other information. Land classification consists of placing definite bodies of land in categories which help compare their characteristics and which treat similarly bodies of land having similar characteristics. Land may be classified in many ways (such as relative suitability for some use, type of operating unit, natural characteristics, cultural features) depending on the objectives which the classification is expected to serve.

Two broad objectives which land classification may serve are those involving the formulation of land-use policy and those concerned with the carrying out of particular policies with respect to land use. The land classification of Overton County serves both of these objectives to some extent. It is what has come to be known as a use-district land classification. Barnes 20/ defines a use-district as an area

> "...to all parts of which recommendation concerning the desirability of given types of operating units or some statement concerning the probable effect of operating land in given types of units, is uniformly applied, and which is large enough to encompass one or more operating units of a size and type adapted to the land...
>
> "A use-district is not necessarily an area in which the uses of land or types of operating units are recommended. It may be an area in which merely those types of operating units inimical to the public welfare are indicated, or in which the consequences of operating the land in given types of units is anticipated. The size of operating units is considered to include farms, stock ranches, grazing districts, forests managed or operated as units, whether in public or private ownership, parks, wild life refuges, or properties of other types, either public or private, which are used, managed or operated as units."

In making the classification, the entire county was examined by traveling all roads in an automobile at a speed of about 15 miles per hour. One man drove while the other mapped, although both participated in the classifying. The automobile survey was supplemented by trips on foot wherever necessary to see all of the land, and fre-

20/ Barnes, C. P. Land Classification: Objectives and Requirements. Land Use Planning Publication No. 1. Land Use Planning Section, Land Utilization Division, Resettlement Administration. 1936. (Mimeographed)

quent stops were made for the purpose of noting type and condition of farms, present use of the land, topography, stoniness, erosion, evidences of crop yields, idle or abandoned land, and any other outstanding characteristics. Farmers were interviewed not only during this part of the study but later when the farm records and living-standards schedules were obtained. For field purposes a map of recent date on a scale of 1 inch to the mile (showing roads, houses, schools, churches, etc.) was used as a base. This was supplemented by a soil map and topographic quadrangles for such other information as these maps provided. The tentative boundaries of the land classes were drawn within a period of 2 weeks, but the process of revision continued for several months, as the collection of information on the social and economic factors affecting land use progressed. The classification was finally checked with the county agent and other interested citizens.

On the land-classification map in figure 4 are shown three classes of agricultural land and three classes of non-agricultural land. When the land-classification work was started in this county the workers intended to map a more intensive type than land Class II, but no areas encompassing present or potential complete operating units suitable for intensive use were found. Land Class V was to have been a combination part-time farming-forestry or mining area, but was finally omitted because part-time farming in the area under consideration was only incidental to the major use of the operating unit - forestry - and was, therefore, not a use-district. This explains the omission of land Classes I and V throughout the text.

The use-district boundaries have been drawn to provide for the inclusion of land of a kind and an amount required for entire operating units of a type adapted to the land. An economic farm unit in this county will usually contain not only cropland, but steep or stony land used for pasture or woodlot. A use-district in farming areas, therefore, includes a group of farms that may have rough land used for pasture and forest, along with the smooth lands useful for crops. On the other hand, a use-district in a forest area will embrace several thousand acres of land adapted to this purpose.

To express the classification in another way, the areas in Classes II, III, and IV, according to evidence now available, may continue as farm lands without wasting public funds by causing excessive public expenditures for relief, roads, schools, and other public services, or causing poverty so extreme as to endanger health or make practically impossible local tax contribution toward the cost of providing elementary education. This does not necessarily mean that the present system of farming is the ideal one for the area, or that the institutional arrangements should not be modified. It merely means that the area, if properly used, is capable of supporting a farm population. In land Classes VI, VII, and VIII, the evidence indicates that the establishment or maintenance of farms of any type in the long-run will cause or continue to cause excessive expenditure of public

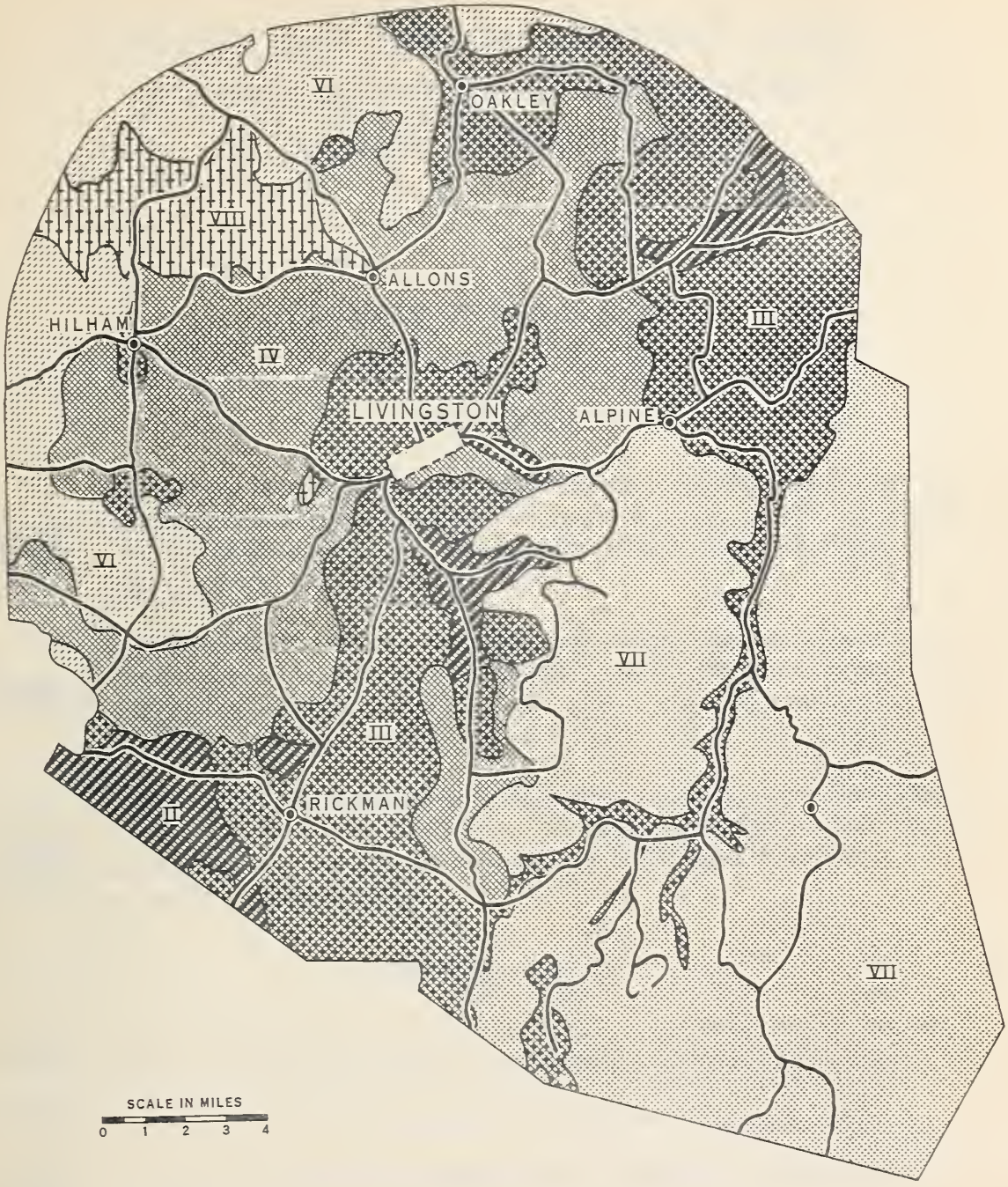

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Figure 4. -- Use-District Land Classification Map of Overton County, Tennessee.

LEGEND FOR THE USE-DISTRICT LAND CLASSIFICATION MAP OF OVERTON COUNTY, TENNESSEE

CLASSES OF RURAL LAND

AGRICULTURAL

II 

Areas of good agricultural land, comparatively level land of good fertility, or undulating land of high fertility; moderately subject to erosion or slight fertility problems. Suitable for general diversified farming; 75-125 acres needed to support a family; 3-4 year rotation.

III 

Areas suitable only for an extensive type of agriculture because most of the cleared land is of low quality, hilly, or readily susceptible to erosion and requires longer rotation period than above; 50% or more of the average farm may be in forest; 125 to 200 acres required to support a family; 5-6 year rotation.

IV 

Areas primarily adapted to grazing, either because the land is too hilly or infertile for cultivation except possibly in 7 to 10 year rotations, or because it is stony, glady, very shallow, or poorly drained. Generally 200-300 acres required to support a family.

NONAGRICULTURAL

VI 

Areas now predominantly forested but with scattered farms and clearings which are generally unsuited to agriculture, and which should be in forests.

VII 

Areas now solidly or almost solidly forested and that should so remain.

VIII 

Recreational areas (Standingstone Forest Project and Zollicoffer WPA Project).

funds for relief, roads, schools, and other public services, or make practically impossible local tax contribution toward the costs of providing such services as education at acceptable standards.

The classes of agricultural land range from units adapted to semi-intensive use on relatively small acreages to those adapted to extensive use on large acreages. The non-agricultural lands range from areas containing scattered farms, which are generally unsuited to agriculture, to areas now solidly forested.

One of the features of this classification is that an approximate size of operating unit is indicated for the three classes of agricultural land. The recommended ranges in size of farms for the various classes of land are purely estimates of the authors, based to some extent upon the assumption that 50 to 75 acres of cropland are necessary in this county for a farmer to establish and follow a farming system that will enable him to maintain the soil fertility and produce a satisfactory income. 21/ Data from records kept by farmers in cooperation with the University of Tennessee Agricultural Extension Service, indicate that the total family earnings (receipts minus expenses plus value of unpaid family labor, food, and fuel furnished by the farm, and 10 percent of the value of the house) on farms with this amount of cropland in this area may be expected to average approximately $750. Labor income (receipts minus expenses and 5 percent interest on capital) may be expected to average slightly less than $500.

The principle of allowing 50 to 75 acres of cropland per farm could not be followed strictly because of such factors as relative productivity of the croplands, difference in income that might be expected from varying size woodlots, the gradual shift of emphasis from crops in Class II areas to grazing in Class IV areas, and the change in the length of rotations from one class of land to another. One other important factor in determining the size of unit recommended for an area was the general topography and related physical conditions. For example, in Class II areas practically all of the land may be suitable for cropping; in Class III areas there will be more rough land, woodland, and waste; in Class IV areas there will be still more rough, steep, or poor land -- necessitating a larger acreage for an economic unit.

Experience and judgment of the authors, together with what information could be gleaned from available farm-management records of the area and opinions of the 131 farmers interviewed, all confirmed by the county agent, lead to the belief that the estimated

21/ For a discussion of crop rotations and suggested fertilizer treatments see the publication from which part of this classification is adapted -- Hendricks, H. E., A Land Use and Soil Management Program for Tennessee. Pub. 197, University of Tennessee, 1936.

acreages for the various use-districts are reasonable.

Practically all of the agricultural land in Overton County is adapted to an extensive use only. According to this reconnaissance land classification 148,077 acres (51.3 percent of the county) are suitable for farming, compared with the 211,675 acres now in farms (both of these figures include farm woodland and all other lands needed to make an economic farm unit). Of this amount none is believed to be adapted to intensive farming in economic units, and only 12,605 acres (4.4 percent) to semi-intensive uses. One-fourth of the county, or one-half of the agricultural land, is adapted only to a very extensive use.

An estimated 33,000 acres which are unsuited to agriculture are now in farms. More than 7,000 acres of similar land have already been bought by the United States Department of Agriculture as a demonstration land-use project. There are 93,503 acres now almost solidly forested and should so remain. The acreage by land classes is given in table 7.

Table 7.--Acreage of Land, by Land Classes, as Determined from Reconnaissance Use-District Land Classification Overton County, 1936

Land class	Acreage in class	Percentage in class
	Acres	Percent
Urban	512	0.2
I	None	None
II	12,605	4.4
III	58,826	20.6
IV	76,646	26.8
V	None	None
VI	33,018	11.6
VII	93,503	32.8
VIII	10,330	3.6
Total	285,440	100.0

To describe adequately the characteristics of the land, the county has been divided into 22 fairly homogeneous areas, besides the town of Livingston and the Standingstone Forest Project. More than 22 areas are shown on the map in figure 5, but similar areas have been given the same number. The descriptions that follow are given as part of the supporting information for the land classification just discussed. The boundaries of the 22 areas do not necessarily conform wholly or in part with the boundaries of the land classification map. The boundaries for the use-district land classification in order to embrace logical operating units may be drawn, for example,

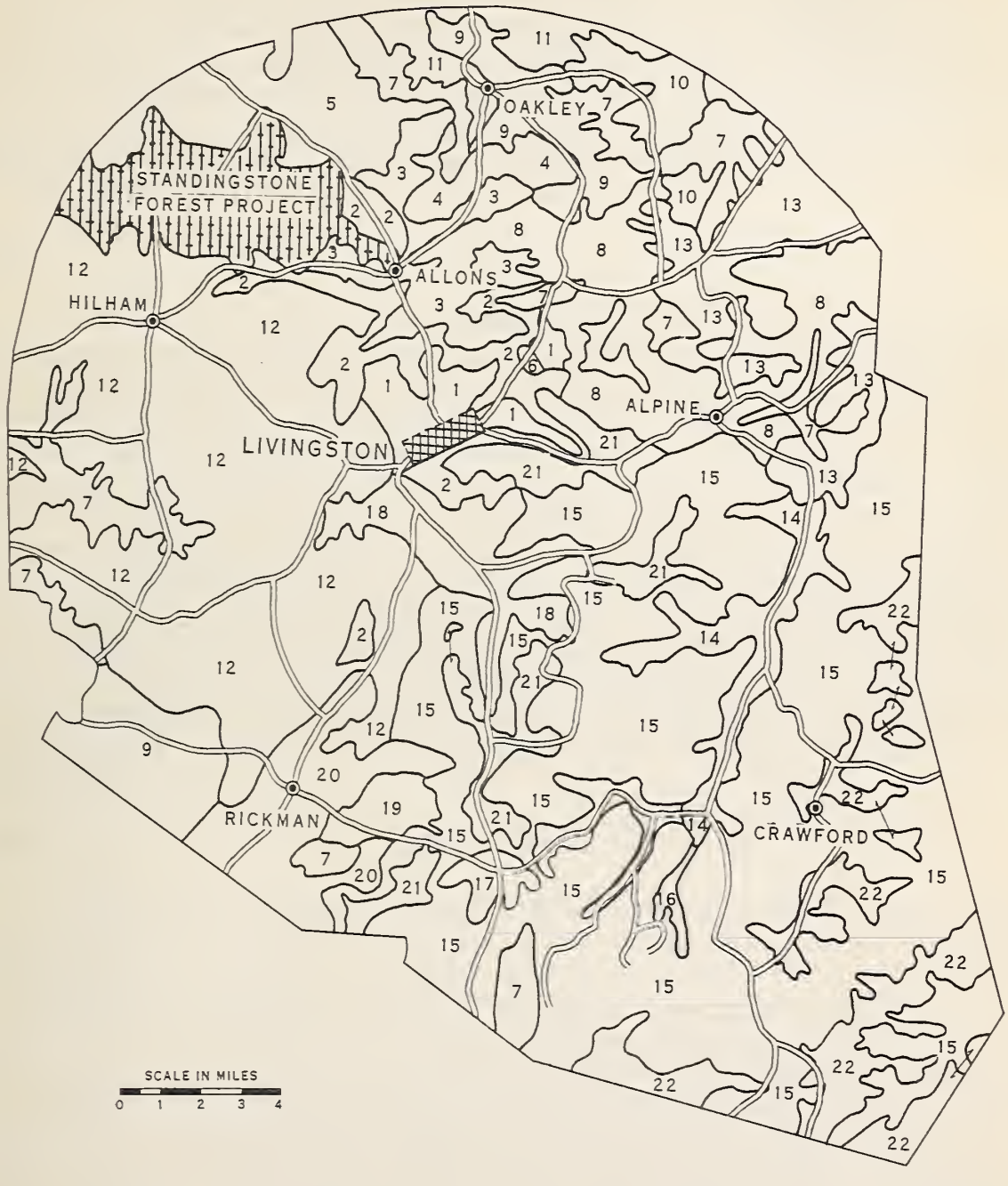

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Figure 5. -- Outline of Overton County, Tennessee areas described in the text.

along the top of a woodland ridge, which would ordinarily be a property line in this county. Such a ridge might be a mile or more in width and several miles in length and described as a separate area in the descriptions that follow. On one side of the ridge might be valley land suitable for intensive cultivation, while on the other side might be a valley of a different soil type, topography, etc. making it suitable only for an extensive type of farming. When such situations were found, the line separating the two use-districts was drawn along the top of the ridge. Therefore, any of the 22 areas described below may have been divided and made parts of two or more use-districts, which explains in part the statements indicating that not all of an area is in one land class.

Area 1

This area, comprising approximately 2,800 acres, is adjacent to Livingston on the west, north, and east sides, with another similar area somewhat farther northeast and separated from the larger one by a rough strip of land described in Area 2. The soils are mapped as Decatur loam (probably Baxter under present classification). The topography is undulating to rolling, yet there is a tendency toward erosion; scalds are frequent. Limestone sinks that hinder cultivation and contour plowing are common. Practically all the timber has been cut off, and the area is thickly settled. About three-fourths of the area is being utilized for crops; there is a small extent of pasture and very little idle land. Some of the people have employment in town, but the most of them are dependent on the land. The land problems are minor, mainly erosion caused by too frequent cropping and lack of soil-building crops. This area is in land Classes II and III.

Area 2

This area comprises about 9,900 acres of rough, steep slopes, covered with second-growth timber. The rough land almost encircles Livingston at a distance varying from ¼ of a mile to 2 miles. It is between the limestone residual soils of the valley and the sandstone soils on the Plateau ridges, having an average width of about ½ mile. Two small areas similar to the large one around Livingston are included in the acreage mentioned above. One of these is just east of the Standingstone Forest Project, and the other about 2 miles southeast of Windle. There is some pasture just below the timber growth, but frequent rock outcroppings and gullies indicate that it should be reforested. This land is in farms and is used mainly for farm woodland, part of which is pastured. The problem here seems to involve management and use of the lands in private ownership. Probably the checking of erosion by proper seeding and grazing of pasture and reforestation would solve the maladjustment in use here. This area is farm woodland, most of which is in land Class IV.

Area 3

There are two boundaries of this group comprising a total of 8,200 acres of the sandstone-derived soils on the tableland in the vicinity of Allons and about one-half the distance between Livingston and Monroe. The soils are mapped as Dekalb silt loam (now Hartsells). The land is of good topography, level to gently rolling. Although there are some poorly drained places that are about the only areas left with trees, the area is characterized by stumpy sassafras growth. It is estimated that 25 percent of this area is in an idle and abandoned state. Very few livestock are kept and pastures are very poor and weedy, as are the hay fields. Houses and barns are unbelievably poor in quality. About 40 percent of the area is cropland, 25 percent pasture, 25 percent idle, and 10 percent forest. Corn is grown almost to the exclusion of all other crops. The area is densely populated, the relief load is heavy, farms are small, and crop rotations are practically unknown. Since it seems that this area can be retained in agriculture, it has been placed in land Class IV.

Area 4

This area slopes north of the area just described and consists of approximately 3,400 acres. It is mostly stony loams and rough land, with frequent sink holes. About 30 percent is covered with second-growth timber, 25 percent is idle or abandoned, 20 percent is rough pasture, and 25 percent is cultivated. Practically the only crop grown is corn; livestock are scarce, and houses are in a run-down condition. It is thickly settled, although not so densely as around Allons. Living standards are low, yet few in this area are on relief. Part of this area is in land Class IV and part in land Class VI.

Area 5

This area consists of approximately 8,600 acres, and lies north of the Standingstone Forest Project. It is rather similar to the project area, perhaps containing a little more cleared land. The soils are mapped as Clarksville stony and rough stony. The topography is rugged. There is no level land. Practically all of the area has been cleared in the past in pioneer fashion -- trees girdled or cut, leaving high stumps. The land is severely eroded owing to primitive farming methods. It is estimated that 40 percent of this area is now covered with second-growth timber (a large proportion of which is not more than bush size), 30 percent is idle or abandoned land, 10 percent pasture, and 20 percent cropland. Corn is the main crop, with some wheat. There are no other crops but there are a few gardens. A part of what is here called idle or abandoned land might be called woodland, since it is growing up rapidly to sassafras. The area is inhabited throughout. Houses are poor and not worth more than $100 to $150 each. This area is entirely in land Class VI.

Area 6

There are approximately 200 acres of Clarksville stony loam in this area, located about 2 miles northeast of Livingston. It is rough and eroded and has considerable idle land. It is cut up by numerous sink holes and gullies. Indications are that nearly all of this has at one time been cultivated, but at present about 50 percent of it is in pasture and not over 20 percent in cropland. The pasture is characterized by heavy growth of sassafras and persimmon bushes. This area is in land Class III.

Area 7

In this area are 14,300 acres, situated in various parts of the county consisting of narrow strips of Clarksville stony and rough stony lands adjacent to some of the streams, such as Spring Creek, Roaring River, Mitchell Creek, and Eagle Creek, almost entirely covered by trees, and are parts of farms. These strips are in land Classes III, IV, and VI, depending on their location with respect to other lands.

Area 8

This area comprises 15,800 acres of hilly to rough land, dissected by numerous streams. There are also many sink holes. The soils are mainly stony loams. The area extends from the vicinity of Alpine northwestward to within 2 miles of Oakley and northeastward to the Pickett County line. It is estimated that 25 percent of the area is in forest, 25 percent in pasture, 10 percent idle, and 40 percent in crops. There is some wheat and hay, but corn is the principal crop. This area is mainly in land Class IV, although some of it in the eastern part of the county is in land Class III.

Area 9

This area contains approximately 11,400 acres of undulating to rolling Clarksville silt loam, located in three places in the county - in the vicinity of Oakley in the northern part of the county, in the southwestern corner of the county, and just east of Taylor's Cross Roads. The land is fertile and the crops are well diversified. Crops grown are wheat, rye, oats, corn, and hay. Milk cows and beef cattle are to be seen. Probably 50 percent of the area is in crops, 25 percent in pasture, 20 percent in forest, and 5 percent idle. This area is in a good state of cultivation, and problems are minor. This area falls mainly in land Classes II and III.

Area 10

This area contains about 4,000 acres of undulating to rolling Clarksville silt loam soils in the vicinity of Taylor's Cross Roads, and is very much similar to the one just described, but apparently

has not been as well farmed. The soils seem to be exhausted; there is not as much diversification of crops, nor are there as many livestock to be seen. There is considerable idle and very poor pasture land. It is estimated that 15 percent is idle or abandoned, 15 percent is in forest, 30 percent in pasture, and 40 percent in cropland. Houses are of medium quality. This area is wholly in land Class III.

Area 11

On the northern boundary of the county is an area of Clarksville stony loam consisting of 4,400 acres which is now in a very poor agricultural condition. The area was at one time extensively cultivated, but farming is now being abandoned and the fields are growing up. But the people are not leaving. The soils appear exhausted from yearly cropping to corn. Erosion is severe. It is estimated that about 10 percent of the area is now in crops, 30 percent is in poor pasture, and 30 percent is in second-growth timber. There are about five families per square mile in the area, several of whom are dependent on relief for an existence. This area is in land Class VI.

Area 12

This area embraces 50,000 acres in the western part of the county. The soils are mapped as Clarksville silt loam. It is a hilly area, rough and broken, characterized by severe gully erosion. The first settlements were made here. Poor farming practices have depleted the soil fertility. Corn is about the only crop. The outstanding feature of this area is the proportion of idle or abandoned land now growing up to sassafras. It is estimated that 40 percent of this area is in this condition; 35 percent is woodland, 10 percent is pasture, and 15 percent is cropland. It is thickly settled. Houses are poor. Farms are small, averaging about 55 acres. Many of the relief clients are in this section. The land problems seem to be those associated with small farms, poor farming methods, and the wrong type of farming. This area is in land Class IV.

Area 13

In the northeastern part of the county is an area of 8,500 acres, principally Clarksville silt loam, characterized by considerable idle land, with, however, a high percentage of the better land in crops. The idle land is located in the rough and hilly places. There is a diversity of crops, but only a few livestock are evident. It is estimated that 40 percent of the area is in crops, 20 percent idle, and 20 percent in forest. Some of this area is in land Class II, but most of it is in land Class III.

Area 14

This area of 5,900 acres is along the West Fork of the Obey River, and is mapped by the soil survey as Clarksville stony and

silt loams. There are some small fields of bottom land but most of this area is relatively steep upland cropland and pasture. The farms are fairly well fenced, and there are probably more livestock in this area than in any other area of similar size in the county. Crops are diversified, although corn is the major crop. It is estimated that 35 percent of the area is cropland, 30 percent pasture, 15 percent idle, and 20 percent woodland. There are 6 to 10 families per square mile. This area is in land Class III.

Area 15

This area consists of 84,800 acres, lying in the southeastern part of the county on the Cumberland Plateau. It is virtually separated into two parts by the West Fork of the Obey River. It is mapped as Dekalb stony loam (now Muskingum). It is a rugged area, 80 percent of which is now in forest. Agriculture offers little opportunity; cropland occupies about 10 percent of the whole area, pasture 5 percent, and probably 5 percent is idle. Compared with the rest of the county it is sparsely settled, except for the mining communities. Much of the area east of the West Fork is underlain with coal, where coal companies and private individuals own large tracts. The people who have depended on mining and lumbering for years are in distress because operations have collapsed. This area is in land Class VII.

Area 16

This is a continuation of Area 14, consisting of 3,800 acres. The two areas are separated where the valley, going upstream, narrows considerably. There is less crop and pasture land and more idle and forested lands than lower down the valley. It is estimated that 35 percent of the area is cropland, 15 percent pasture, 20 percent idle, and 30 percent is forest. This area is in land Class III.

Area 17

This is an area of about 1,100 acres at Beaverhill. Most of it is in two properties which include several hundred acres of rough woodland. This area is of good topography for agricultural purposes and has been well cared for. The soils are good loams. Probably 45 percent of the area is cropland, 40 percent pasture, 5 percent idle, and 10 percent woodland. It is a well-diversified area, for both crops and livestock. This area is in land Class III.

Area 18

This area of 5,300 acres embraces the good loam soils in Hartsaw, Deck, Copeland, and Collins coves, and is one of the best sections of the county. Much of the land is level and has had excellent care. Large painted houses are the rule rather than the exception. It is estimated that 60 percent of this area is cropland, 30 percent pasture, 10 percent woodland, with no idle or

abandoned land. This area is in land Class II.

Area 19

This area, in the vicinity of Oak Hill, comprises 1,500 acres of what was once a very fertile part of the county. It is rolling land which has been seriously damaged by sheet erosion. At present, a large portion, probably 50 percent, is idle or abandoned. About 30 percent of the area is in cropland, 10 percent in pasture, and 30 percent in woodland. It can be made fertile again. This area is in land Class III.

Area 20

This is another good area of Clarksville silt loam soil, comprising about 9,400 acres, centering around Rickman. It is undulating to rolling with some semi-swampy places. A diversified system of agriculture is followed to some extent, and as a whole the area is fairly prosperous. It is estimated that 40 percent is cropland, 30 percent pasture, 10 percent idle, and 20 percent forest. This area is in land Classes II and III.

Area 21

In this classification are several small areas of Dekalb silt loam soils on the lower tablelands of the Plateau totaling about 8,900 acres. The land is almost level but is characterized by poor farming. Houses, farms, and farm implements are in a run-down condition. Living standards are low. The proportion of cropland is high (35 percent) as is the proportion of idle or abandoned land (25 percent). About 15 percent is in pasture and 25 percent in forest. Farms are small, and the owners expect only subsistence. Many are on relief. Part of this area is in land Class IV and part in land Class VI.

Area 22

The 12,600 acres in this classification are located in several places on the Plateau, particularly at Cliff Springs, Hanging Limb, Green Pond, and Crawford. The topography is level, but the soils are sandy. Miners, who have utilized the land on a part-time basis for subsistence, are now out of work and in distress, since the area is not adapted to farming. This area is in land Class VII.

Figures 6, 7, 8, and 12 show the generalized situation of the county as to cropland, pasture, idle or abandoned land, and forest cover. To show data in simple map form, the four classifications used were taken to equal 100 percent of the area, no allowance being made for roads, buildings, waste, or other uses of the land.

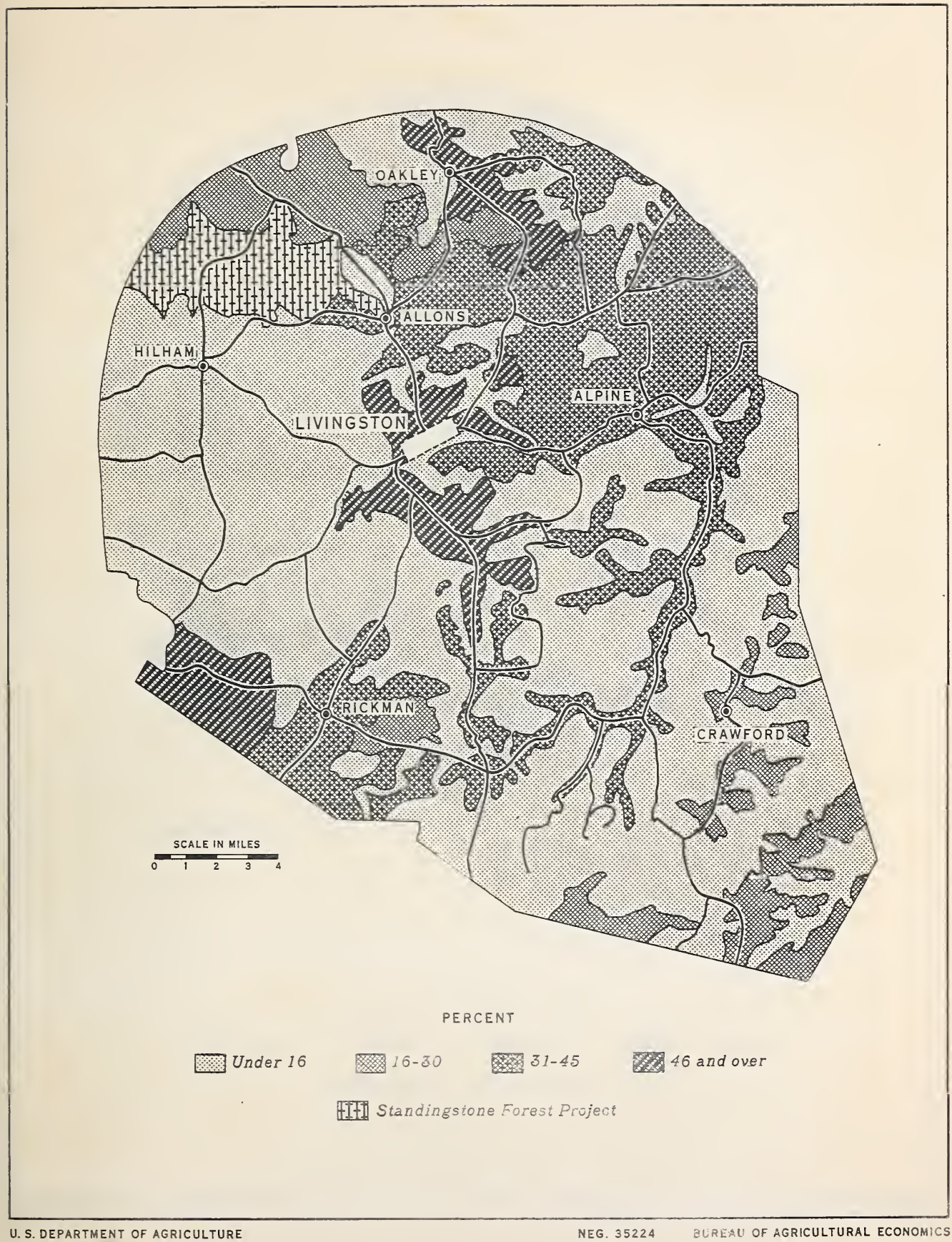

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Figure 6. Percentage of Overton County land in crops, as determined by reconnaissance survey.

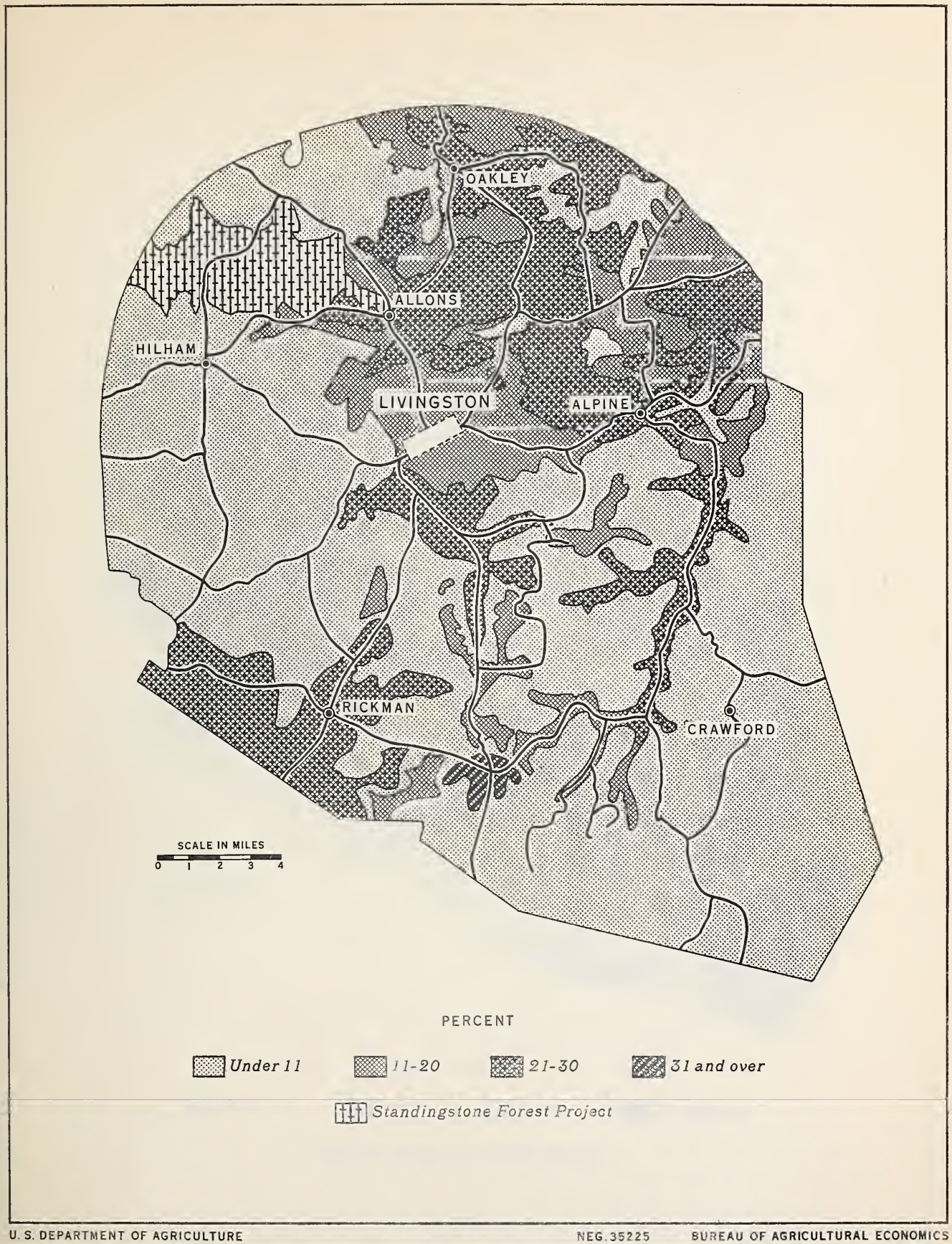

Figure 7. Percentage of Overton County land in pasture, as determined by reconnaissance survey.

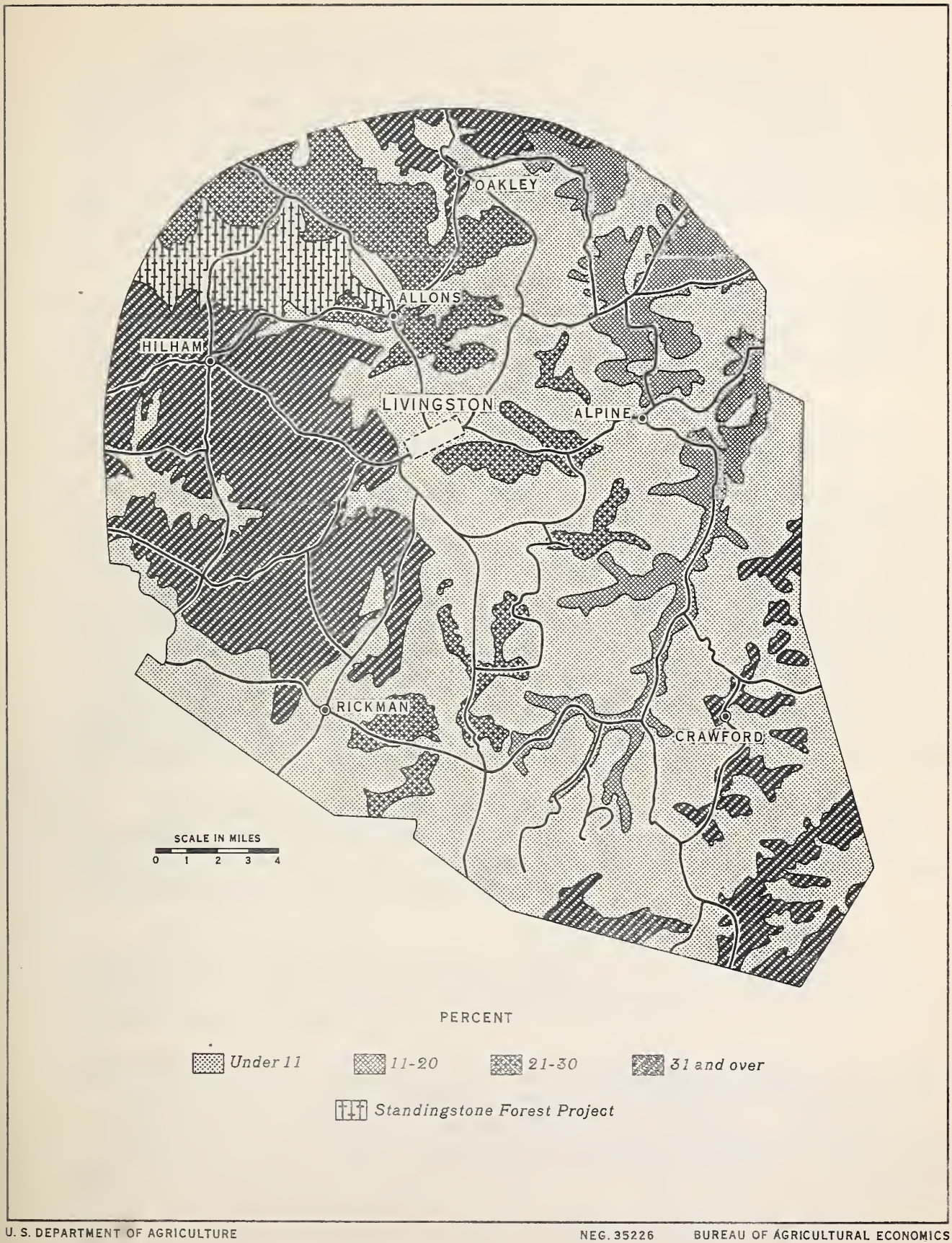

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Figure 8. Percentage of Overton County in idle or abandoned land, as determined by reconnaissance survey.

In more than one-half (58 percent) of the area of the county less than 16 percent is in cropland. This would be expected in the southeastern part where most of the land is in forest cover, but in the western part this situation is due largely to extensive areas of idle or abandoned land where over 30 percent is estimated to be idle. The extreme southwestern corner, the coves in the central part of the county, and the level areas around Oakley are more than 45 percent in cropland.

The lands that are little used for pasture follow the same pattern as the area in cropland. Where there is a high percentage of the area in cropland there is also a high percentage in pasture, and vice versa. The high percentage of idle or abandoned land is found where there is little crop and pasture land.

Organization of operating units in relation to land classes 22/

Major Land Use. The 131 farms surveyed contain 12,454 acres which are utilized as follows: woodland 36 percent; cropland 35 percent; idle land 8 percent; open pasture 15 percent; and waste land 6 percent. The major land use on these farms by land class is given in table 8. It will be observed that the average size of farms range from 156 acres for land Class II to 56 acres for Class VII; likewise cropland ranges from 58 acres to 16 acres; and open pasture from 37 acres to 5 acres. Farms in Class VI areas had the largest acreage of idle cropland, with nearly one-half as much cropland idle as in crops. Farms on Class II land had the smallest acreage of idle cropland, and had only one-fifteenth as much cropland idle as was planted.

The data for the 131 farms have also been analyzed by size groupings, according to the number of improved 23/ acres rather than total acres in the farm. There were 40 small, 54 medium sized, 25 medium large, and 12 large farms. 24/

The 40 small farms had an average of 8.1 acres in woods pastured, 15.0 acres in woods not pastured, 14.8 acres in crops, 2.6 acres in idle cropland, 3.2 acres open pasture, and 4.0 acres of waste land, making a total of 47.7 acres.

22/ This section is based on 131 farm-organization schedules obtained in Overton County in 1936 in cooperation with the Department of Agricultural Economics, University of Tennessee. Approximate location of the farms surveyed is shown in figure 9. (See tables 8-12)

23/ Improved acres include all land in the farm with the exception of woodland and waste land.

24/ Farms having 33 acres or less of improved land are designated as small, 34 to 66 acres as medium, 67 to 99 acres as medium large, and 100 to 195 acres as large.

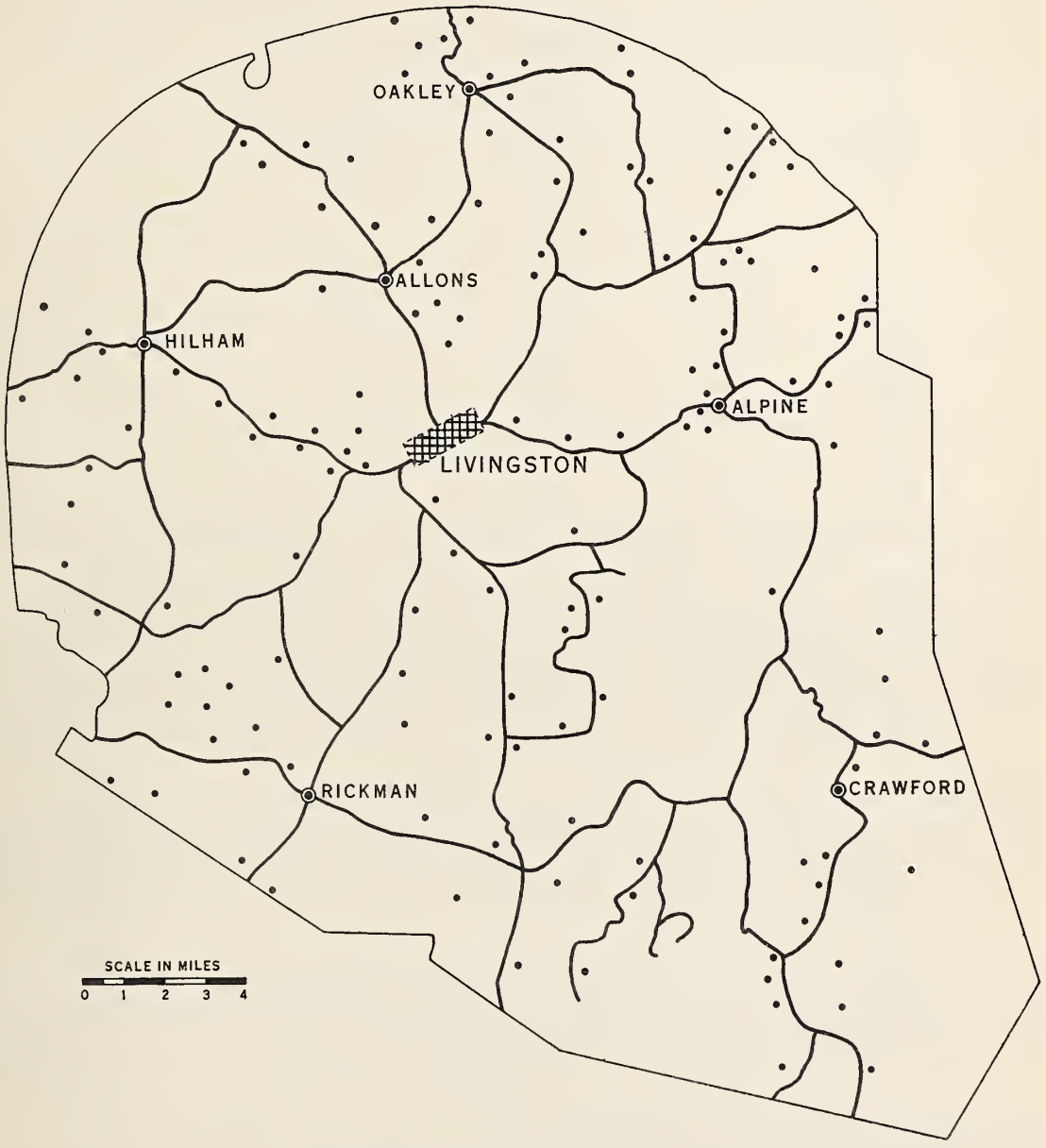

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Figure 9. Approximate location of Overton County farms, surveyed to obtain farm management and living standards data.

Table 8.--Major Land Use on 131 Farms, by Land Class, Overton County, 1936

Land use	Acreage in land class				
	II	III	IV	VI	VII
	Acres	Acres	Acres	Acres	Acres
Woods pastured	16.6	15.9	7.7	6.8	12.6
Woods not pastured	36.5	25.2	17.2	22.2	14.3
Cropland	57.7	41.7	28.1	23.6	16.0
Cropland idle	3.8	7.2	8.9	11.3	4.5
Open pasture	37.1	15.9	10.2	18.8	5.1
Waste	4.8	6.3	7.8	3.6	3.0
Total	156.4	112.2	79.9	86.3	55.5

With the average acreage on small farms as a base, the medium-sized farms had only 2 acres more in woodland, but more than 2 times as many acres in crops, nearly 3 times as much acreage of both idle cropland and open pasture, a little more waste land than on the small farms, and nearly 70 percent more total acres in the farm.

With the average acreage on the small farms as a base, the medium large farms had about 2 times as much woodland, three times as much crop and idle land, 8 times as much open pasture, one-third more waste land, and 3 times the total acreage per farm.

With the average acreage on small farms as a base, large farms had 4 times as much woodland, 5 times as much crop and idle land, 17 times as much open pasture, $4\frac{1}{2}$ times as much waste land, and 5 times as much total acreage.

Average Size of Farms. On the basis of average total size, farms on Class II land were largest of all groups, being 40 percent larger than the average for the next highest group. Farms on Class VII land were smallest of all groups. This is the reverse of the desirable situation. (See table 9).

Land in Classes VI and VII is not suitable for agriculture, and of course none of the present units are large enough to operate as forests. In fact, the largest unit of the farms surveyed in either of these classes is 173 acres. The land in Class IV is adapted to farming, but all of the farms surveyed were smaller than desirable, the largest being 190 acres. In land Class III, 14 percent of the farms fall within the recommended range for size, 12 percent are larger than recommended, while 74 percent are smaller

than recommended. In land Class II, 50 percent are larger than recommended, 33 percent fall within the recommended size range, and 17 percent are smaller than recommended.

Table 9. -- Actual Average Farm Size for 131 Overton County Farms Compared with Recommended Size, by Land Classes, 1936

Land class	Actual size	Recommended size
	Acres	Acres
II	156.4	75 - 125
III	112.2	125 - 200
IV	79.9	200 - 300
VI	86.3	Forest unit
VII	55.5	Forest unit

Total Investment per Farm. None of the farms on Class II land had a total investment as low as $1,500; 58 percent of the farms had an investment of more than $6,000. None of the farms on land Class IV had an investment of more than $4,500, but 38 percent of them had total investments of less than $1,500. On land Class VI, none of the farms had a total investment in excess of $3,000, but two-thirds of them were less than $1,500. Seventy-five percent of the farms on Class VII land had an investment of less than $1,500, and none exceeded $3,000. As would be expected, a large percentage of the total investment is in land, but this percentage decreases with the quality of the land. (Table 10).

Three-fourths of the small farms had a total investment of not more than $1,500. Eight percent had an investment of more than $3,000, but none exceeded $4,500. Twenty-two percent of the medium-size farms had a total investment of $1,500 or less, 46 percent from $1,500 to $3,000, 26 percent from $3,000 to $4,500, 4 percent from $4,500 to $6,000, and 2 percent over $6,000. Only 4 percent of the medium large farms had a total investment as low as $1,500; 16 percent of these farms exceeded $6,000 in total investment. Seventeen percent of the large farms had an investment of $1,500 to $3,000, but the remainder of this group exceeded $6,000.

Man-equivalents.25/ Fifty percent of the farms on Class II land had a man-equivalent exceeding 1.0, and only 25 percent had as low as 0.5 per farm. Twenty-six percent of the farms in Class III areas had a man-equivalent greater than 1.0, and 28 percent not in

25/ A man-equivalent is equal to the employment of one man for 12 months.

excess of 0.5. Forty-six percent of the farms on Class IV land had a man-equivalent of 0.5 or less. None of the farms on Class VI and only one farm on Class VII land had a man-equivalent greater than 1.0, while two-thirds of those on each of these classes had an equivalent of 0.5 or less.

Table 10--Distribution of Investment in the Farm Business for 131 Overton County Farms, by Land Classes, 1936

Item	Investment by land classes				
	II	III	IV	VI	VII
	Dollars	Dollars	Dollars	Dollars	Dollars
Land 1/	3,076	1,755	830	520	321
Houses	655	463	289	141	122
Other buildings 1/	386	342	151	81	73
Fences	133	114	55	44	27
Drains	---	---	1	--	--
Machinery and equipment	222	153	104	60	43
Livestock	646	518	315	244	190
Feed and supplies	607	355	233	181	112
Cash to run farm	99	79	44	52	34
Total	5,824	3,779	1,992	1,323	922

1/ Investment at the beginning of the year plus one-half of improvements of $100 or more made during the year.

Sixty-eight percent of the small farms had a man-equivalent of not more than 0.5, and none had more than 1.0. Thirty-seven percent of the medium size farms had a man-equivalent not in excess of 0.5, 2 percent more than 1.0, but none over 2.0. On the medium large farms, 20 percent had a man-equivalent of 0.5 or less, 40 percent had from 0.51 to 1.0, and 40 percent more than 1.0. None of the large farms had a man-equivalent as low as 0.5. Twenty-five percent in this group ranged from 0.51 to 1.0, 58 percent from 1.01 to 1.5, and 17 percent from 1.51 to 2.0.

Man-Work Units. On the basis of average total man-work units (amount of work done by a man in a 10-hour day) per farm per year, the farms on Class II land had an average of 257, which exceeded all other groups by more than 25 percent. Farms on Class VII land had the smallest number of man-work units, averaging only 103 per farm.

By size of farm groups, the average number of man-work units per farm ranged from 98 on the small farms to 309 on the large farms. The average for the medium farms was 168 and for the medium large farms 224.

Cropland. Farms on Class II land had an average of 63 acres in crops, 30 percent of which was corn and 55 percent hay. Small grains and minor crops accounted for the remainder of the acreage.

On Class III land corn represented 44 percent of the 46-acre average per farm in all crops. Thirty-one percent was in hay, 14 percent in small grains, and the remainder in minor crops.

Only 30 acres were in crops per farm on Class IV land, 58 percent of which was in corn and 28 percent in hay.

The farms on Class VI land had only 27 acres in all crops, 64 percent of which was in corn and about one-fourth in hay.

Only 17 acres per farm were in crops on Class VII land, 54 percent of which was in corn.

Corn, a soil-depleting crop, occupies a large percentage of the total cropland on classes of land either unsuited to agriculture or suited only to an extensive type of agriculture. The average acreage planted to corn, regardless of land class, is about the same -- 17 to 20 acres. Hay, pasture, and other crops occupy a very small percentage of the lands suited only to extensive uses.

Small farms planted an average of 16 acres in crops, 60 percent of which was corn. Corn represented 50 percent of the 36 acres in crops on the medium farms, 42 percent on the medium large farms, and 37 percent on the large farms. The proportion of the crop acreage in corn decreases and the proportion in hay and small grains increases as the size of farm increases.

Livestock. The preceding discussion naturally indicates that there would be more livestock on Class II land, since the farms are larger and have larger acreages in pasture, hay, and other feeds. There are 14.4 animal units per farm on this class of land, compared with 8.2, 5.3, 4.6, and 3.4, respectively, for land Classes III, IV, VI, and VII. Very few livestock are produced for sale except on Classes II and III.

Small farms averaged 3.2 animal-units, medium-size farms had 5.6, medium large farms had 9.8, and large farms 18.4. Dairy cows, some hogs and poultry, and other cattle are probably produced in excess of home needs on the large farms. The medium large farms may have a few poultry and cattle of commercial importance, but the small farms apparently have only enough for home needs.

Table 11--Summary of Farm Organization, by Land Classes, 131 Overton County Farms, 1936

Item	Land class				
	II (12 farms)	III (50 farms)	IV (39 farms)	VI (6 farms)	VII (24 farms)
Total acres	156.4	112.2	79.9	86.3	55.5
Acres improved land	98.6	64.8	47.2	53.8	25.6
Acres crops 1/	62.7	46.0	30.0	26.7	17.2
Average total investment	$5,824	$3,779	$1,992	$1,323	$ 922
Operating capital	$1,574	$1,105	$ 696	$ 536	$ 378
Farm receipts	$ 714	$ 451	$ 270	$ 233	$ 229
Current expenses	$ 316	$ 190	$ 109	$ 85	$ 51
Farm expenses	$ 560	$ 364	$ 260	$ 220	$ 147
Animal-units	14.4	8.2	5.3	4.6	3.4
Operator labor					
Months off farm	2.8	1.0	2.2	2.8	4.3
Months on farm	6.4	5.3	3.6	3.6	3.6
Months family labor on farm	2.8	2.7	2.8	2.2	2.3
Months hired labor	2.8	2.1	1.0	.5	.2
Number man-work units per farm	256.8	200.1	150.8	140.9	102.8
Man-equivalents per farm	1.00	.83	.63	.52	.50
Percentage of tenancy	8.3	10.0	15.4	--	33.4

1/ Includes double-cropped acres.

Source of Receipts. Average gross receipts for the farms on Class II land were $714, of which livestock accounted for 58 percent. Sources of income other than the regular farm business accounted for $155 or slightly more than one-fifth of the total. Livestock accounted for 45 percent of the $451 average gross receipts for the farms on land Class III, while income from other than the farm business returned less than one-sixth of all receipts. The average gross receipts for farms on land Classes IV, VI, and VII were $270, $233, and $229, respectively. "Other sources" accounted for a high percentage of the total for each of these classes, while livestock accounted for one-third or less.

On the basis of total gross receipts, small farms had an average of $253, medium farms $296, medium large farms $477, and large farms $877. Livestock were the principal source of receipts on all groups except the small farms, where outside sources accounted for more than 70 percent of the total.

Farm Expenses. Farms on Class II land had an average expense of $560, compared with $147 for those on Class VII. The average expense for the farms on land Classes III, IV, and VI amounted to $364, $260, and $220, respectively. Current expenses accounted for a major percentage of the total, while generally a decrease in the inventory of feed supplied was second.

Small farms had expenses amounting to $155; medium sized farms, $269; medium large farms, $478; and large farms, $600.

Outside Employment of Farm Operators. One-third of the operators on Class II land had some employment off the farm in 1936; 17 percent of the total had employment for 12 months. Thirty-eight percent of the operators on Class III land worked off the farm; 4 percent worked 12 months, but were the only ones working off the farm for more than 6 months. Forty-nine percent of the operators on Class IV land had outside employment, and 16 percent were employed more than 6 months. One-third of the operators on Class VI land worked off the farm, and one-sixth worked for 12 months. Seventy-nine percent of the farm operators on Class VII land were employed off the farm, and 21 percent worked 12 months each.

Seventy percent of the operators on small farms worked off the farm; 22 percent worked 12 months each. Forty-six percent of the operators on medium-sized farms had some outside employment, 28 percent of those on medium large farms, and 25 percent of those on large farms.

Source of Farm Labor. Excepting farms on Class IV land, the operators supplied more than one-half of all farm labor. Family labor varied from 23 percent of the total on land Class II to 38 percent on land Class VII. Labor supplied by wage hands varied from 22 percent on land Class II to 3 percent on land Class VII. Some labor was supplied by croppers on land Classes II, III, and IV.

On small farms the operators worked an average of 3 months and other members of the family 2 months, but there was only 0.3 months hired labor. On the medium farms the operators worked an average of 4.5 months; family labor, 2.6 months; and hired labor, 0.6 months. On the medium large farms labor of the operators, family, and hired help averaged 5.9, 3.8, and 3.0 months, respectively. Labor on the large farms averaged 6.7, 2.6, and 5.2 months, respectively, for operators, family, and hired help. There was a small amount of cropper labor in each of the farm size groupings.

Table 12--Summary of Farm Organization with Averages for Selected Items, by Size of Farm, 131 Overton County Farms, 1936

Item	Farm organization of			
	40 small farms	64 medium-sized farms	25 medium large farms	12 large farms
Size of farms, acres	47.7	79.5	130.1	249.9
Acres improved land	20.6	49.5	80.5	140.9
Acres in crops 1/	16.1	35.7	50.9	79.4
Average total investment	$1,074	$2,577	$4,008	$7,018
Operating capital	$ 361	$ 824	$1,266	$1,918
Total receipts	$ 253	$ 296	$ 477	$ 877
Current expenses	$ 60	$ 97	$ 266	$ 414
Farm expenses	$ 155	$ 269	$ 478	$ 600
Animal-units	3.2	5.6	9.8	18.4
Operator labor:				
Months off farm	4.4	0.9	1.4	2.1
Months on farm	3.0	4.5	5.9	6.7
Months family labor on farm	2.0	2.6	3.8	2.6
Months hired labor	.3	.6	3.0	5.2
Number man-work units per farm	97.6	167.9	224.3	308.8
Man-equivalents per farm	.44	.69	1.08	1.20
Percentage of tenancy	20.0	16.6	8.0	8.3

1/ Includes double-cropped acres.

Efficiency of the operating units in agriculture

In studying efficiency factors, it must be remembered that the 131 records on which this section is based were taken for the 1936 crop year - an extremely dry one for Overton County - therefore some factors may not be ranked exactly as they would rank in a normal season.

Receipts per $100 Total Investment.26/ On the basis of total farm receipts per $100 invested, the poorer land classes compare favorably with the better classes. This may be partially explained by the fact that the poorer classes have a much smaller total investment, and even a relatively small amount of total receipts would make a comparatively high rate of capital turnover. The abnormal season and small sample of records, especially on Class VI land, may also be largely responsible for this situation. Average receipts per $100

26/ As used here, receipts are gross farm receipts and do not include other than the farm sources of income.

invested are as follows:

Land Class II	$ 9.56
Land Class III	10.05
Land Class IV	8.26
Land Class VI	10.05
Land Class VII	8.64

Large farms were the most efficient on the basis of receipts per $100 total investment. They had an average of $12.21, compared with $7.51 for small farms. The average for medium farms was $9.73 and for medium large farms $9.38.

Receipts per Man-Work Unit. Receipts per man-work unit range from $2.28 for the farms on Class II land to only 71 cents for those on Class VII land. Farms on Classes III, IV, and VI had average receipts per man-work unit of $1.70, $1.06, and 92 cents, respectively. None of the farms on land Class II had receipts as low as 50 cents per man-work unit, but 42 percent of those on Class VII were this low, 17 percent of Class VI, and 28 percent of Class IV. Land Classes II, III, and IV had 42, 26, and 10 percent, respectively, of the farms with receipts per man-work unit in excess of $2.00, while none of the farms on Classes VI and VII (nonagricultural) land had receipts per man-work unit of as much as $2.00.

Large farms had considerably higher receipts per man-work unit with an average of $2.52, compared with $1.58 on medium large farms which ranked second. Small farms had the lowest with an average of only 75 cents. However, a small farm had the highest upper range limit with $5.85 farm receipts per man-work unit. The average for the medium farms was $1.39.

Relation of Crop Index to Land Classes. 27/ The mean crop index varies from 61 for farms on land Class II to 25 for farms on land Class VI. The average mean crop index is 10 points higher for farms on land Class VII than for those on land Class VI. The mean index for Class III farms is 57 and for Class IV farms, 41.

There is a direct correlation between the unweighted mean crop index and the size of farm. Small farms had the lowest average crop index, 34, and large farms the highest, 64. The unweighted mean crop index for the medium farms was 50, and for the medium large farms, 53. A medium size farm had the highest crop index of 117, while a small farm had the lowest of only 2.

27/ Crop index is based on the average yields of the State, as reported in the Agricultural Yearbooks for the 5-year period, 1931-35.

Productivity Balance. 28/ Some farms on all land classes had a negative mean productivity balance, and all farms on land Classes IV, VI, and VII had a negative balance. One-third of the farms on land Class II had a positive balance, as did 6 percent of those on land Class III. Farms on land Class VI were depleting their soil fertility at the most rapid rate, having a mean balance of --5.69, compared with balances of -.89, -2.53, -4.09, and -3.66, respectively, for farms on land Classes II, III, IV, and VII.

There is a direct relation between the size of farm and mean efficiency in maintaining the fertility of the soil. Large farms were most efficient with a mean productivity balance of --1.71. Small farms were least efficient with a mean balance of -4.32. The balance for both medium and medium large farms was also negative, being -3.29 and -1.93, respectively. None of the small or medium farms had a positive balance, but 12 percent of the medium large and 17 percent of the large ones had positive productivity balances. Large farms approach maintenance of soil fertility more closely probably because they have a much smaller proportion of their total acreage in intertilled crops, and also because they have considerably larger numbers of livestock.

Living Conditions and Standards in Relation to Land Classes 29/

In studying the standard of living it is desirable not only to discover the total expenditures per family but to convert these expenditures to a household-size consumption index basis. 30/ On the

28/ Productivity balance is a measure of efficiency insofar as it measures the effectiveness or efficiency of the current program of a given farm toward maintaining the present fertility of the soil. If the current farm program is such that the fertility of the soil is being depleted, the farm is given a negative productivity balance rating. If the program is such that the fertility is being increased, the farm is given a positive rating. The productivity ratings were adapted from Ohio Agricultural Extension Bulletin No. 175, (revised), Ohio State University, Columbus, Ohio, 1938.

29/ This section of the report is based on an analysis of 130 schedules obtained in the county in November and December 1936, in cooperation with the Department of Agricultural Economics of the University of Tennessee. The approximate location of the farms surveyed is shown in figure 9.

30/ In comparing the value of living of one family with another, allowance should be made for the difference in composition since the requirements of each family will vary with the number of members, their age and sex. Requirements of each individual varies with the total consumption of goods, and among the different items of expenditure. For example, a 19-year-old son uses, on the average, more clothing than his father, but spends less for personal and health needs. To measure this difference in requirements the active-

following pages living standards are discussed from these two viewpoints. (To avoid confusion, the following narrative dealing with the total actual expenditures is typed in usual form, while the discussion on a household-size consumption index basis for corresponding items is blocked into paragraphs.) Presentation of data concerning housing, operating expenses, advancement, and insurance is on the actual family consumption basis only.

The average total value of family living for the families surveyed is $572; owner families averaged $585 and tenants averaged $513. Families living on land Classes II and III averaged $654, those on land Class IV averaged $531, while those on land Classes VI and VII averaged only $470.31/ The largest value of family living was $1,271, the lowest $157.

> When these data are converted to a household-size consumption index basis or weighted, tenants have a lower and owners a higher living standard than is indicated by actual consumption of goods. There is a corresponding variation by land classes. For each $1 worth consumed by tenants, owners consumed $1.23; for each $1 worth consumed by families on land Classes VI and VII (non-agricultural), those on Class IV consumed $1.19, and those on Classes II and III consumed $1.54. The largest amount on a weighted basis consumed by a family was $2,462, the lowest $156.

The average value of living of the 32 families with the highest value was $866; the second highest 33 families, $620; the third highest 33 families, $493; the lowest 32 families, $309. The quarter of the families with the highest value of living seems to be low enough, especially when compared with farm families in other areas, while the lower quarter of families consume goods which seem sufficient for only one person. The lowest quarter of families expended only $210 for food, $21 for operating goods, $17 for rent, $33 for clothing, $10 for personal goods, $12 for health, $4 for advancement, and $1 for other goods.

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adult-male-equivalent was used. In computing this equivalent, the active (under 30 years of age) operator (man) was given the index rating of 1, other members of the household receiving their index rating in relation to him. The various index ratings are based on data furnished by the Bureau of Home Economics, U.S. Dept. of Agr.

31/ To provide an adequate sample for analysis, it was necessary to combine land Classes II and III, and VI and VII. This made three groupings, namely, II and III as good agricultural land; IV as poor agricultural land; and VI and VII as land unsuited to agriculture.

Table 13--Average Actual and Household Consumption Size Index Basis Value of Total Goods Consumed, by Tenure and Land Classes, 130 Farm Families, Overton County, 1936

Tenure and land class	Average value of goods consumed	
	Actual value	Household consumption size index basis
	Dollars	Dollars
Tenure		
Owners	584.52	594.05
Tenants	512.80	482.64
Land classes		
II and III	654.48	679.88
IV	530.63	524.21
VI and VII	469.70	440.47

There is a direct relation between the capacity of the farm to produce a large gross income, as measured by the farm's capital, number of animal units, acres in crops and acres in the farm, and the total value of living of the farm family. The value of living for the quarter of families with highest farm capital averaged $750, compared with $434 for the lowest quarter; based on productive livestock units the highest quarter averaged $737, compared with $454 for the lowest; for crop acres the highest was $716, the lowest $455; and for total acres in the farm the highest was $727 and the lowest $497.

The average weighted value for the 32 families with the highest value was $921; second highest 33 families, $597; third highest 33 families, $461; and the lowest 32 families, $321.

The farm furnished 55 percent of the total family living. The average amount furnished by the farm was $315, ranging from $47 to $588. Although the total value of family living varies considerably, the proportion furnished by the farm is only slightly higher for owners and for families on good land.

Of the $572 average cost of living, $358, or 63 percent, went for food; $73, or 13 percent, clothing; $35, or 6 percent, operating expenses; $31, or 5 percent, shelter; $28, or 4 percent, personal expenses; and $16, or 3 percent for advancement. Of the remaining $7, or 1 percent, $3 was spent for home furnishings, and $4 for insurance (figure 10).

Nearly three-fourths (74 percent) of the $357 worth of food consumed per family was supplied by the farm (table 14). Dairy products constituted over one-fourth (28.4 percent) of the value of

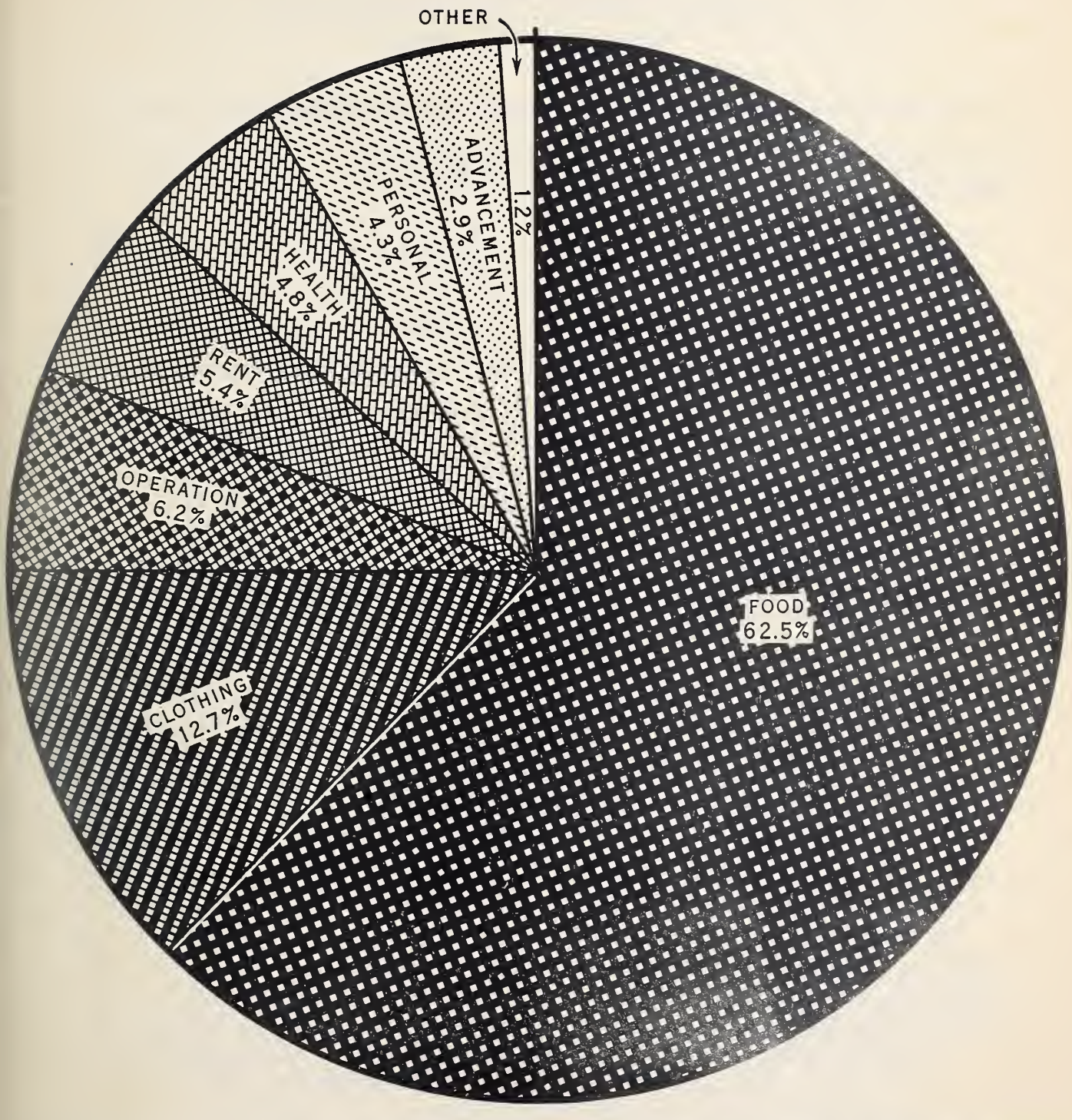

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Figure 10. Percentage of value of living going into main budget items, 130 farm families, Overton County, Tennessee, 1936.

food consumed; 73.7 percent of the value of food consisted of dairy products, pork, meal, flour, potatoes, and poultry.

Table 14--Value of Food Furnished by the Farm and Purchased, by Tenure Groups, 130 Farm Families, Overton County, 1936

Tenure group	Food			
	Furnished by farm		Purchased	
	Dollars	Percent	Dollars	Percent
Owners	273.01	76.0	86.31	24.0
Tenants	230.35	65.9	119.18	34.1
Average	265.47	74.2	92.13	25.8

When the value of food is measured by the household consumption index, owners are found to have a higher standard than tenants, even higher than is shown by the actual consumption of food. Actual consumption shows that owners use about $10 more food than tenants, but the household-size index of consumption shows owner families with more than $40 advantage -- $365 compared with $324. A similar situation is shown with respect to food by land classes. Table 15 shows the variations by tenure and land classes.

The average clothing expenditure of the 130 families was $72.64, or 12.7 percent of the total expenditures. The figures range from nothing to $400 per family. Owners spent more than tenants, and families on land Classes II and III spent more than those on land Class IV, who in turn spent more than those on land Classes VI and VII. (Table 16)

Clothing expenditures per household-size consumption index varied only slightly from actual expenditures. In actual clothing expenditures owner families purchased $17 more than tenants, but based on the household consumption index their clothing purchases amounted to $20 more than tenants. Practically no difference was found between the actual and household equivalent expenditure with respect to land classes (table 16).

For personal goods 32/ the families averaged $25 for the year, which is less than 50 cents per week. Owners consumed one-fifth more personal goods than tenants, $25 compared with $21. Families

32/ Personal expenditures include tobacco, drinks, barber fees, toilet articles, and gifts.

on land Classes II and III, IV, and VI and VII spent $30, $17, and $22, respectively, for personal items.

In personal expenditures, owner families have a higher standard of living on a household-size consumption index basis than is indicated by actual expenses, while tenants have a lower one. By land classes, however, there is only a slight variation between the two measures of personal expenditures (table 17). The highest personal expenditure among the 130 families was $261, while several families had no personal expenditures.

Table 15--Average Actual and Household-Size Index of Value of Food Consumed, by Tenure and Land Classes, 130 Farm Families, Overton County, 1956

Tenure and land class	Average food consumption	
	Household-size index	Actual
	Dollars	Dollars
Tenure class		
Owners	364.75	359.32
Tenants	324.29	349.53
Land class		
II and III	400.83	381.05
IV	348.74	348.34
VI and VII	286.38	325.19
Average	357.60	357.60

Health expenditures 33/ for the 130 farm families (table 18) averaged $28 per year, accounting for 4.8 percent of the cost of living. A larger percentage of the living expenditures (4.95) went for health among owners than among tenants (4.12).

For the nine deaths that occurred within the 130 families during the year, $361 was spent for burial expenses, an average of $40 for each burial. The most expensive burial for an adult, cost $100; the least expensive, for an infant, cost $6. The average burial expense for all families was $2.78.

Owner families spent more and tenants less per household equivalent on health than is indicated by actual expenditures. Comparative figures by tenure and land classes are given in table 18, both actual and household-size index.

33/ Health costs include expenditures for doctor, dentist, oculist, medicine and medical supplies, hospital and nurses' fees, and funeral expenses.

Table 16--Average Actual and Household Equivalent Clothing Expenditures, by Tenure and Land Classes, 130 Families Overton County, 1936

Tenure and land class	Average clothing expenditure		
	Household-size index	Actual	
		Amount	Percent of total
	Dollars	Dollars	Percent
Tenure class			
Owners	75.99	75.65	13.0
Tenants	57.04	58.61	11.4
Land class			
II and III	87.53	87.71	13.4
IV	62.86	60.57	11.4
VI and VII	57.51	60.40	12.9
Average	72.64	72.64	12.4

Table 17--Average Actual and Household Equivalent Personal Expenditures, by Tenure and Land Classes, 130 Farm Families, Overton County, 1936

Tenure and land class	Average personal expenditures	
	Household index	Actual
	Dollars	Dollars
Tenure class		
Owners	25.72	25.38
Tenants	18.97	20.57
Land class		
II and III	29.80	30.24
IV	17.40	17.20
VI and VII	22.43	23.73
Average	24.53	24.53

The average value of furnishings in the 135 dwellings was found to be $107. Thirty-six percent of the families had furniture valued at $50 or less. Farm owner families had furniture valued at $112 per family, compared with $80 for tenant families.

Furnishings of each dwelling were rated good, fair, or poor,

as to general appearance and condition. Twenty-four percent were rated as good, 44 percent as fair, and 32 percent as poor. A significant relationship was found between the value of furnishings in the home and the total living expenditures. Families with less than $50 worth of furnishings had a standard of living value of $437, while those with furnishings valued at $125 or more had a standard of living value of $729. Furnishings bought during the year averaged only $3.00 per family, but the average value of furnishings used during the year, measured by 8 percent of the value of furnishings, was $8.29. On this basis, owner families used $8.77 worth of furnishings, tenants $6.09; families on land Classes II and III used $10.96 worth; those on land Class IV used $6.69 worth, while those on Classes VI and VII used an average of only $6.15 worth. The highest value of furnishings used per family was $88, the lowest $1.20. Furnishings represented 1.4 percent of the total value of living among the 130 families surveyed.

Table 18--Average Actual and Household Equivalent Health Expenditures, by Tenure and Land Classes, 130 Farm Families, Overton County, 1936

Tenure and land class	Average health expenditures	
	Household-size index	Actual
	Dollars	Dollars
Tenure class		
Owners	26.87	26.09
Tenants	15.11	18.74
Land class		
II and III	26.68	23.91
IV	24.13	30.98
VI and VII	20.26	17.83
Average	24.79	24.79

Operating expenditures 34/ for owners were greater than for tenants, the average being $35 per family. Families on land Classes II and III spent more than those on land Class IV, who in turn spent more than those on land Classes VI and VII. Fuel was the principal operating expense, the average expenditure being $20 per year. All but 6 percent of the fuel was furnished by the farm; the amount purchased averaged $1.27 per family per year.

34/ Operating costs include fuel, light, transportation, and hired help in the household.

Rent[35] amounted to $31 per family for the year, or 5.35 percent of the total value of living. There is considerable variation by tenure and land classes, lower amounts being charged to tenants and those families on lands adapted to forestry and extensive agricultural uses (table 19).

Ten percent of the families carried either life, health, or burial insurance. Expenditures for the 13 families carrying insurance averaged $40.60. Eleven owners spent $44.57 each, compared with two tenants who spent $19 each. Seven families on land Classes II and III spent an average of $49.55, 4 families on land Class IV averaged $36.25, and two on land Classes VI and VII averaged $18 for insurance. The average for the 130 families was only $4.06.

Table 19.--Average Value of House Rent with Corresponding Percentages of Total Living, by Tenure and Land Classes, 130 Farm Families, Overton County, 1936

Tenure and land class	Average value of house rent	Percentage of total living
	Dollars	Percent
Tenure status		
Owners	31.45	5.38
Tenants	26.64	5.19
Land class		
II and III	46.02	7.03
IV	23.29	4.39
VI and VII	11.03	2.35
Average	30.60	5.35

The farm families have very few books, excluding school books--over three-fourths had not more than 10 volumes. The average number, exclusive of school books, was 10.8 books per family. About three-fourths of the farm families had no books relating to agriculture. Approximately two-thirds of the families were without agricultural bulletins.

Forty-two percent of the families read one or more daily newspapers, 21 percent read weekly newspapers, 50 percent read farm journals, and 33 percent read other magazines.

The county ranks low in automobile ownership. Sixteen percent of the families in this survey had automobiles worth an average of

35/ Rent was charged at 10 percent of the value of the dwellings.

$226. This is a rate of 3.1 automobiles per 100 inhabitants. For the county as a whole, including Livingston, there are only 3.9 automobiles registered per 100 inhabitants.

No public telephones were found among the families surveyed. A few farmers, however, do have telephone connections, although there are only 142 subscribers in the entire county, and 136 of these are in Livingston.

One-fourth of the families surveyed were found to be without toilet facilities, approximately one-half were equipped with only an outside unsanitary toilet, and about one-fourth had sanitary outside toilets. One family had an inside toilet.

Three-fourths of the dwellings were equipped with fireplaces, slightly less than one-fourth had wood or coal stoves, and one family had a furnace. Most of the stoves used for heating were found in the homes of the families of low economic status.

All of the 135 families except four used ordinary kerosene lamps. One had electricity, one an Aladdin lamp, while two used candles. The amount spent for lighting during 1936 averaged $3.26 per family, ranging from 30 cents for one of the families using candles to $18 for the family using electricity. Owners spent more than tenants for lighting purposes, and families on classes of land adapted to semi-intensive uses spent more than those families on essentially nonagricultural land.

Less than 7 percent of the families possessed ice boxes or washing machines; practically all of these families were farm owners located on land Classes II and III.

The average value of the 135 36/ farm dwellings used in this study is $307, compared with $260 for all farm dwellings in the county in 1930, while the average value of farm dwellings for the State was $602 in 1930. Dwellings of farm owners in Overton County, as determined in this survey, were valued at an average of $315, compared with an average of $265 for those of tenants. Further analysis shows that the dwellings situated on land Classes II and III are valued at an average of $450, those on land Class IV at an average of $236, while those on land Classes VI and VII are worth an average of only $110 (figure 11).

Housing conditions are probably a good measure of standard of living. The standard of living value for the families housed in dwellings worth less than $100 was $401 as compared with $787 for those living in dwellings worth $400 or over.

36/ For the remainder of this section of the report, 135 schedules were analyzed instead of 130.

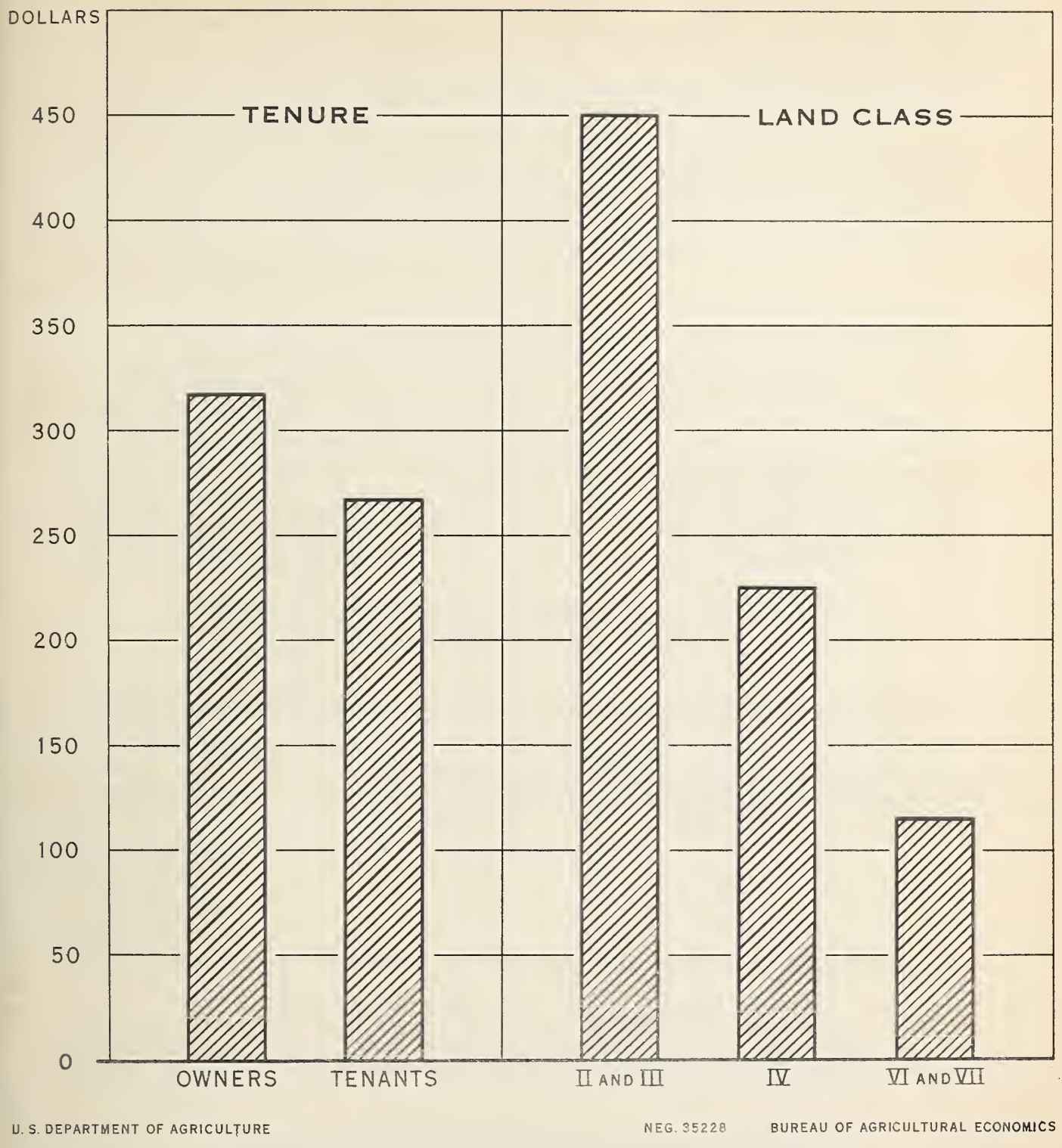

Figure 11. Average value of 135 farm dwellings, by tenure status and land class, Overton County, Tennessee, 1936.

Eighteen percent of the 135 houses are log huts, 9 percent originally log but later weatherboarded or boxed, 19 percent boxed, 53 percent weatherboarded, and 1 percent brick. The construction of the owner dwellings is far superior to that of tenant dwellings. Sixty-one percent of the houses on land Classes II and III are of weatherboard construction, compared with 25 percent of those on land Classes VI and VII, which is really non-agricultural land. Three-fourths of those dwellings on land unsuited to agriculture are of log, log-frame, and boxed types. Even on land of Classes II and III, 37 percent of the houses are of these three types. On land Class IV, 57 percent are weatherboarded, and 43 percent are of log, log-frame, and boxed types.

Dwellings were rated good, fair, or poor as to condition and general appearance. Twenty-five percent were rated good, 39 percent fair, and 36 percent poor. As would be expected, farm owners' dwellings received better ratings than those of tenants, and dwellings on good land were found to be superior to those on poor land (table 20). In a rural-housing survey made by Tennessee Emergency Relief Administration in 1935, 37/ more than one-half of the 3,403 homes accounted for in this county were found either to be unfit for habitation or in need of major repairs.

Table 20--Condition of Houses, by Land Classes in Overton County, 1936

Land Class	Percentage in					
	Good condition		Fair condition		Poor condition	
	Percent		Percent		Percent	
II and III	40		37		23	
IV	16		42		42	
VI and VII	7		37		56	

Fifty-three percent of the farm dwellings were found to be unpainted, 20 percent painted but in poor condition, 14 percent painted and in fair condition, and 13 percent painted and in good condition.

Extent and Distribution of Forest Resources

Estimates as to the amount of merchantable timber left in the county vary somewhat depending upon the type of timber the mills are cutting. Most sawmill operators agreed that not more than 10 percent of the original timber is now left in the county. The estimates of

37/ Preliminary Population Report, Tennessee State Planning Commission, Nashville, Tennessee, 1935.

virgin timber left in the county vary from 0 to a maximum of 5 percent of the original stand. Most of this timber is what has been left in places where it is almost impossible to remove it. The mill operators were of the opinion that the best of the timber being cut now was cull and timber that was otherwise unsatisfactory at the first cuttings. On record is a sale of 100 acres of timber rights in 1920 for $35,000, and it is probable that this price will not be equaled again for a long time.

The rate of growth on the Standingstone Forest Project forest area (lower and upper cove types) has been estimated by the project forester as 200 to 225 board feet per acre per year, or approximately $2 per acre per year of hardwood timber.

Figure 12 shows the distribution of the forest cover as determined by a reconnaissance survey. Of the total of 170,000 acres of forest land in the county, 91,000 acres are in farm woodland, 72,000 acres in private non-farm ownership, and slightly over 7,000 acres in Government ownership. Census figures indicate that no large change has taken place in the proportion of woodland in farms since 1880 (table 21).

Table 21--Trend in Farm Woodland Area in Overton County by Census Periods, 1880-1935

Year	Acreage in woodland	Percentage of total land in farms
	Acres	Percent
1880	124,797	43.8
1890	116,408 1/	40.8 1/
1900	125,300 1/	44.0 1/
1910	109,060	38.2
1920	106,505	37.4
1925	105,769	37.1
1930	89,605	31.4
1935	90,530	31.8

1/ Estimates only.

The types of timber and their distribution in the county follow rather closely the distribution of certain types of soil. In the lower coves, on the heavier types of soil, poplar, walnut, beech, maple, blue beech, cucumber, buckeye, and hickory timber are found. On the upper coves, or areas of lighter soils, are the white, black, and red oaks, some post oaks and water oaks, and hickory. On the higher ridge tops, where the soils are of sandstone derivation, there are almost pure stands of chestnut oaks. These type differentiations hold true with considerable accuracy throughout the county, except on the Plateau section on the eastern edge of the county. The same type

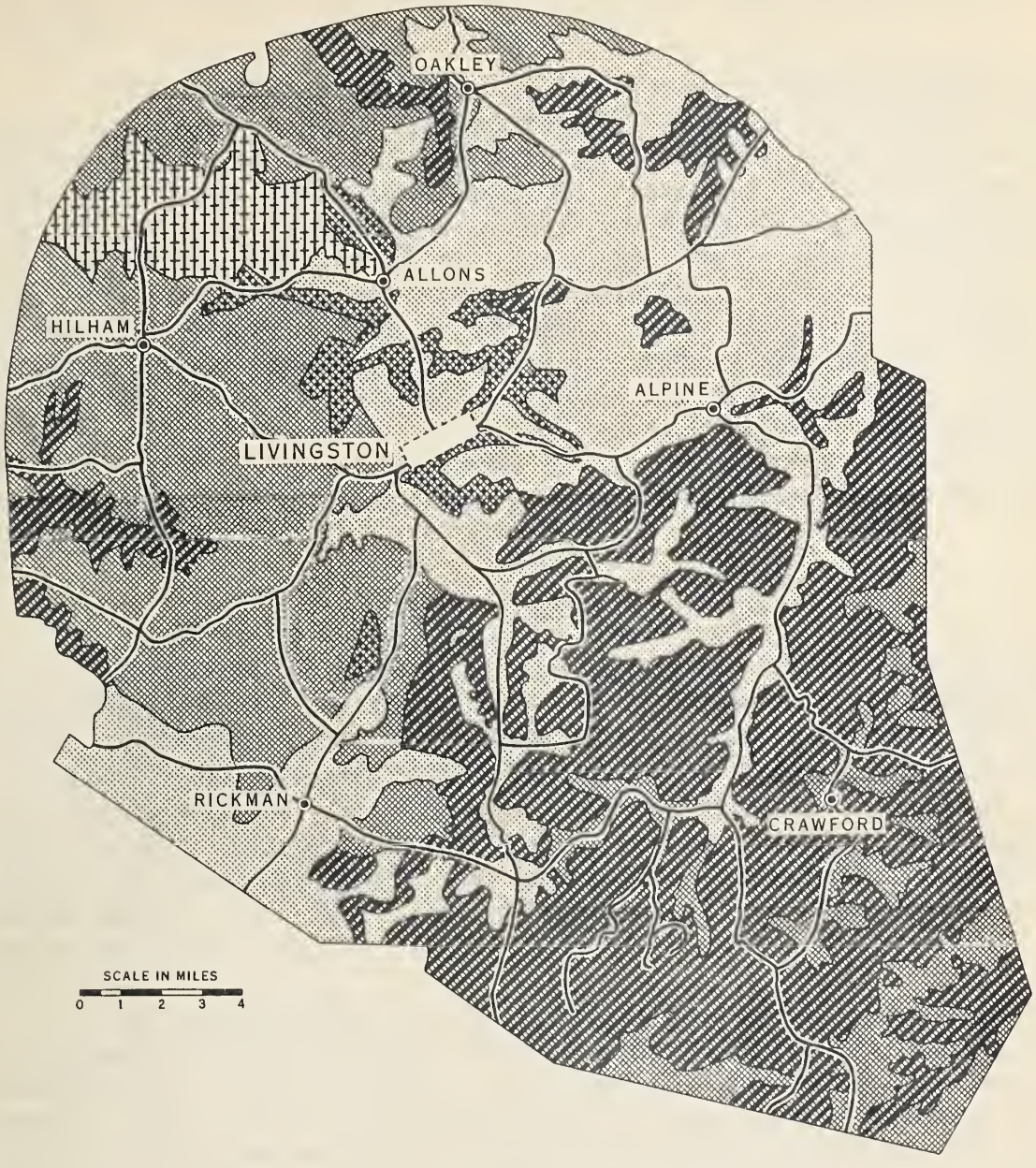

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Figure 12. Percentage of Overton County forested, as determined by reconnaissance survey.

gradations hold true on the slopes of the mountain, but there is a fourth grouping of short-leaf pines, a little hemlock, and a few blackjack, white, and red oaks on the Plateau, according to the project forester. Chestnut, once plentiful, has been killed by blight.

The frequency of fires in the wooded areas has left its marks upon the present timber stands. Much of the present second-growth timber is stunted and deformed, and has other fire marks upon it. These fires come from the spreading of brush-fires on new lands, and from fires deliberately set to kill out undergrowth and to improve the pasture in the woodland. Much more of the forested area was utilized as so-called "free-range" pasture in former times than is being used at present, since it is now illegal in Overton County to allow stock to roam freely through the countryside. However, in the Plateau section of the county, a considerable amount of stock is still allowed to roam over the woodland. No one seems to care to enforce the law, primarily because cultivated crops are of minor importance in comparison with the benefits of the free-ranging of stock.

Water Resources

There are no navigable streams within the present boundaries of Overton County but three large creeks traverse it. Water-power mills of various kinds have been built on their banks. Killebrew[38] in 1874 mentioned that at the falls of the Roaring River in the southwestern part of the county a factory was in successful operation, with machinery for cording, spinning, weaving, and knitting, and in the same building, propelled by the same wheel, there was a flour mill. This mill is still operating, although now only as a grist and flour mill.

On Nettlecarrier Creek, 8 miles east of Livingston, Killebrew reported a cording machine, cotton gin, sawmill, gristmill, and turning lathe with a wagon shop attached, all using the same water wheel. This creek also gave power for two flour mills and a sawmill. Killebrew mentions 9 mills driven by waterpower and makes the comment that it would support many more. Since then, however, other forms of power have taken the place of water for sawmills and for a number of gristmills. At present, there are only three water-power mills in the county, and these are gristmills.

Recreational Resources

Until recent years none of the available land resources of the county was used for recreational purposes. A small recreational park, Zollicoffer, has now been completed through WPA labor. A group of local men underwrote the project for materials with an agreement

38/ Killebrew, J. B. Resources of Tennessee, op. cit., pp. 872-73.

that unless the county repays this underwritten loan the project will revert to the private group. The county is delinquent on bonded indebtedness so that the fate of this "public" recreational area seems obvious. At present the small lake is suitable for boating and is being stocked with frogs and fish. Croquet courts and a lodge have been constructed there.

In the northwestern edge of the county the United States Department of Agriculture has an area of more than 7,000 acres which is being developed as a reforestation and recreation project. A dam has been built across Mill Creek, forming a lake for recreational purposes. A few cabins and one large lodge house were built, and opened to the public in the spring of 1938. The recreational phases of the project are now being managed by the Tennessee State Department of Conservation.

Population -- Significant Characteristics and Trend

Geographical considerations determined that the early settlers of this area should come through Virginia rather than North Carolina. The Cumberland Gap, and thence the Cumberland River, was the chief gateway to the central part of Tennessee beyond the Cumberland Mountains. The first immigrants to this territory came chiefly by this route, and were principally from English and Scotch-Irish stocks. The present population has been derived solely from this basic stock. Foreign-born white population, in 1880, the year in which the largest number was found, accounted for .000575 of the total population of that year. The predominant family names in the county -- Bilbrey, McDonald, Smith, Carr, and Copeland -- denote the social extraction.

In earlier years the Negro population was far larger than it is at present. By 1840 the Negro population was 10.2 percent of the total population, but fell to 4.9 percent in 1870 and declined steadily to 1.1 percent by 1920. In 1930 it was 136, or .8 percent of the total population of the county.

The population increased from 5,643 in 1810 to 18,079 in 1930 (table 22). This represents a growth of 320 percent, and has been accomplished by steady growth except for two Census periods. The increase would be more notable if it were possible to determine the population in the same area Overton County now occupies. The growth in population since 1890, the first Census period in which the county was its present size, until 1920 was 46.3 percent, while from 1920 to 1930 the increase was only 1.0 percent. These fluctuations in growth up to 1890 may be due largely to the losses in area to form parts of other counties. From 1890 to 1920 the growth in population was substantial -- 10.9 percent higher in 1900, 8.1 percent in 1910, and 13.6 percent larger in 1920 than in the previous decade. The 1 percent population increase between 1920 and 1930, however, was very small and would seem to indicate that migration from this county was very heavy.

Table 22--Persons per Square Mile and Area of Overton County, by Census Periods, 1810-1930 1/

Year	Population		Approximate area in	
	Total	Per square mile	Square miles	Acres
	Number	Number	Square miles	Acres
1810	5,643	4.8	1,188	771,128
1820	7,128	10.4	688	440,192
1830	8,242	14.7	561	359,168
1840	9,279	13.2	702	449,280
1850	10,114	13.8	810	518,528
1860	12,637	18.4	688	440,192
1870	11,297	17.1	659	421,888
1880	12,153	27.2	446	285,440
1890	12,039	27.0	446	285,440
1900	13,353	29.9	446	285,440
1910	15,854	35.5	446	285,440
1920	17,617	39.5	446	285,440
1930	18,079	40.5	446	285,440

1/ Based on Census reports.

Baker 39/ measured the birth rate by the number of children less than 5 years of age per 1,000 adult women 15 to 44 years of age. He found that approximately 360 to 370 children per 1,000 women were necessary to maintain population, stationary, in 1930. On this basis, in 1930 there were 635 children per 1,000 women 15 to 44 years of age in this county, or nearly twice as many as are needed to maintain a stationary population.

Occupational Distribution of Gainfully Employed

According to the 1930 Census, there were 5,414 gainful workers in Overton County. Of this number, 91 percent were male and 9 percent female. Three-fourths of the gainful workers were engaged in agricultural pursuits. Thirty-three other types of employment engaged the remaining 25 percent of the workers. Six percent were employed in the extraction of minerals, 4 percent in wholesale and retail trade, 2.5 percent in professional and semi-professional service, 2.5 percent in saw and planing mills, and the other 10 percent in more than 20 occupations.

A count made in 1937 would have shown quite a different distribution. Many who were employed in agriculture, in the extraction

39/ Baker, O. E. "Future Population Prospect". Rural Sociology, Rural Sociology Section, American Sociological Society. June 1937, p 129.

of minerals, and in sawmill and forestry operations in 1930 were then working on relief projects, such as the development and construction work of the Standingstone Forest Project, which is now using the services of approximately 400 men. The farm-to-market road project of the WPA employed an average of 350 men. Other relief projects employed a total of approximately 50 workers. It is doubtful whether 60 percent of the gainful workers would have been engaged in full-time agricultural work in 1937.

The 1935 Census of Agriculture reports 4,878 persons working 2 or more days on farms the first week of January 1935 in Overton County. The same report indicates that 1,200 farm operators received part of their 1934 income from work not connected with their farm. The amount of time spent off their farms varied as follows:

1 to 24 days	471	operators
25 to 49 days	299	"
50 to 149 days	286	"
150 to 249 days	87	"
250 days and over	57	"

Urbanization is practically negligible in this county. Livingston and Allons are the only incorporated towns, with a combined population of 1,666, only 9.2 percent of the total population of the county.

Migration

From an analysis of the 135 schedules it was found that the migration of sons and daughters from Overton County is very high, especially to other States. They migrated to more productive employment areas in the States about the Great Lakes -- Ohio, Indiana, Michigan, and Illinois (table 23).

Of the total of 461 sons and daughters past 14 years of age, 269, or 58.4 percent, were found to be away from home. Tenure status appears to have some effect upon the mobility of the children. Only a slight difference occurs in the percentage of owner and tenant sons away from home, but the proportion of tenant daughters away from home was higher than that of owner daughters. The tendency of daughters to marry at an earlier age than sons, coupled with the fact that sons more often remain at home after marriage, causes a difference in the proportion of male and female children away from home. These percentages of children away from home are 54 percent for males and 64 percent for females.

Ordinarily, owner families are older than part-owner families, and the latter are older than tenant families. This situation would result in owner children being older than tenant children. However, in this study it was found that tenants were older than part-owners.

Table 23.--Percentage of Overton County Sons and Daughters who Have Migrated to Specified Areas1/

Specified area	Sons	Daughters
	Percent	Percent
Within county	44.3	60.1
Adjoining county	10.7	13.0
Remainder of State	13.0	8.0
Other States	32.1	18.9
Total	100.0	100.0

1/Based on 135 schedules.

Daughters away from home are, on the average, younger than sons away from home, or, in other words, daughters leave home at an earlier age than do sons. The average age of sons and daughters away from home is 32.2 and 29.3 years, respectively. Of the sons and daughters away from home, 5.0 percent of the sons were less than 20 years of age, while daughters of the same age class constituted 13.7 percent. Likewise, the percentage of sons and daughters away from home less than 25 years of age is 21.8 and 35.3, respectively.

Sons and daughters of owners constitute older age groups than do those of part-owners and tenants, due chiefly to the fact that owner families are, on the average, older than part-owner and tenant families. The average age of sons away from home for owners, part-owners, and tenants is 34.6, 28.8, and 29.4 respectively, while for daughters the average is 29.8, 26.6, and 30.7 for the same groups.

The movement of sons and daughters from the parental home starts at about the ages of 18 and 16 respectively. By the age of 20, 21 percent of the sons and 41 percent of the daughters have left the parental home. At 30 the movement is almost completed when 73 percent of the sons and 83 percent of the daughters are away from home.

The movement of part-owner and tenant sons and daughters is completed sooner than that of owner sons and daughters. The proportion of sons and daughters away from home at 30 years of age is greater among part-owners and tenants than among owners. A similar tendency is found in age groups greater than 30 years. Greater economic security in owner families than in part-owner and tenant families probably accounts for this relationship. The owner son is encouraged to remain at home and help work his father's farm, frequently operating the farm for his father during later years. By remaining at home, his chances for inheriting a larger part of the

farm are increased. The tenant son cannot hope for a heritage, and does not find it particularly beneficial to remain at home after maturity. Greater economic pressure at home stimulates the daughters of tenants and part-owners to leave the parental home at an earlier age than owner daughters.

Of the sons away from home whose parents live on Class II land, six percent reside outside Overton and adjoining counties, 12 percent for those whose parents live on Class III land do so, 18 percent for Class IV land, and 65 percent for land Classes VI and VII.

Educational attainments

Based on data from 135 schedules taken in Overton County, it was found that homemakers completed, on the average, a fraction of a grade more in school than farm operators, namely, 5.54 for the former and 5.47 for the latter. Owner-operators are better educated than tenants, and those on good land have received more formal education that those on poor land. The average owner-operator has completed 5.6 grades, compared with 4.7 grades for the tenants.

As many of the younger children of the families interviewed are still in school it is difficult to determine the educational attainments of the present generation. However, those away from home have left school, and for this group it was found that the average grade completed for the sons was 6.9 and for the daughters 7.9. Owner sons and daughters are better educated than those of tenants, the average grade completed being 7.9, 5.5, 8.1, and 6.7 for owner sons, tenant sons, owner daughters, and tenant daughters, respectively. Forth-eight percent of the owner sons and 60 percent of the owner daughters completed the eighth grade, while only 15 percent of the tenant sons and 46 percent of the tenant daughters did so.

The relief situation

The relief situation as it exists today is the end result of an economic decline arising from a series of disasters which began in 1930. Up to that time a steady decline in productive wealth had been taking place because the timber and soil resources were nearing the exhaustion stage. In 1930 a very severe drought occurred which left practically everyone without food and feed. The American Red Cross fed, clothed, and maintained many of the people of the county until the next season. It was at this time that outside charity organizations, such as "Save the Children Fund", first became established in the county. Crops in 1932 were somewhat better, but this improvement was completely overshadowed by a small tornado that wrought havoc in the better farming sections of the county and by unemployment in the coal mines.

The State started relief distribution. For about a year this direct relief was confined almost entirely to the mining

section. The years of 1934 and 1935 were also bad agricultural years. At one time or another from January 1, 1932 to 1937, 53 percent of all the farm people in this county had received some form of relief. Available statistics 40/ show that by January 1935, 73 percent of those certified for relief were either farm owners, tenants, croppers, or farm laborers; 6.9 percent were miners; and 20.1 percent were classified as "all others".

An analysis of cases on relief as of January 1936 showed that the average "farm" of those on relief was comprised of 18 acres, of which 50 percent was in cultivation. Ninety-five percent of this cultivated land was in corn, which indicates that complete dependence upon a single crop creates a position which is vulnerable indeed. It is significant, too, that while 92.8 percent of all relief cases have land suitable for gardens, only 63.7 percent report any garden at all, and 42.4 percent were reported as having a "good" garden. A still further analysis of the condition of relief families shows that 40.5 percent of the open cases have cows, 31 percent have hogs, only 24 percent have workstock, and 20 percent of those still on relief have no livestock whatever -- not even chickens. 41/

Until the crop failure in 1930, the county had made a considerable part of its income from sales of cattle and poultry in the opinion of a county trustee. The lack of feeds necessitated the selling of stock until there was "hardly a hoofed animal in the county". Chickens and other fowl, normally sold, were eaten. The recovery in the following years was necessarily slow, as workstock had to be bought, and all other stock had to be purchased again. In some of the dry years following, more livestock was necessarily sold. In fact, the uncertain crop conditions have had a peculiarly procrastinating effect upon farm operations. While giving farm-management records, operators frequently admitted that, for instance, they should have more livestock, but that the dry years had discouraged the building up of herds, for then they were forced to liquidate the herds because of lack of feed and pasture.

The most striking concentration of relief clients is at Crawford, Twinton, Hanging Limb, Obey City, and their environs. One-third of all those certified for relief live in this area. At Twinton and Crawford almost every family is on relief. At Obey City and Hanging Limb, small communities to the south of Crawford, the conditions are nearly as bad.

During the periods of drought many owners and nearly all tenants had to get rid of livestock and poultry. Relief work

40/ Allred, C. E., Collins, W. E., and Mathews, M. T. Rural Relief in Overton County, Tennessee. Cooperative Plan of Rural Research: Tennessee Agricultural Experiment Station, Federal Works Progress Administration, Tennessee Welfare Commission, 1936 (mimeographed).

41/ Allred, C. E. et al. See footnote 40.

offered some income but it interfered with raising crops. As there was no need for workstock and feed was scarce there was a double inducement to get rid of livestock. Those who were on relief received less than $20 a month. On this small amount families could do little more than feed themselves -- not buy feed for livestock. Thus the county has experienced a severe decline in the number of livestock. Those tenants who could formerly supply workstock, tools, and seed have now been lowered to the status of croppers and farm laborers; crop conditions have been so poor in recent years that owners are not willing to take the risks of supporting a cropper.

Accurate data, past and present, as to county expenditures of the various relief organizations cannot be secured. Some of the organizations made no public reports as to expenditures, and records in the county offices were non-existent. Those organizations that did make reports of their own activities and expenditures issued them only intermittently. Many organizations were emergency in character, and operated only for short periods. The following data have been gathered from various sources. The expenditures on present projects are accurate but the expenditures of some of the earlier agencies are merely estimates based on incomplete data:

Agency	Amount spent Dollars
Direct and work relief January 1933 through December 1934 . . .	129,500
TERA expenditures Direct and work relief January 1935 to June 1935	71,089
TERA expenditures Direct and work relief July 1935 through October 1935	40,000
WPA work relief November 1935 to April 15, 1937	338,214
U.S.D.A. project	309,270
Commodities distributed (value of) . . .	13,190
Scrip distributed	6,372
Rehabilitation loans (1936 loans only)	3,174
Total	910,809

Relief activities in 1937 required $25,000 every month in Overton County. To June 1937 the Federal relief money reached well over a million dollars. Besides this Federal money, the county distributed an average of $300 a quarter on "poor relief".

Evidence indicates that many of those now on relief never fared much better from farming than they are now faring on relief. Formerly, just a bare existence was made from farming and this income was supplemented by part-time mining or forestry work. For a time most of those on relief attempted to have the relief income take the place of that formerly derived from part-time forest and mining operations. The diminished yields from drought or other causes occurring in the past years have forced those who had livestock to get rid of them. If those now on relief are to be rehabilitated and enabled to be self-sustaining, one of the first steps should be further aid and encouragement in the ownership of the subsistence-types of livestock, such as cows, hogs, and poultry. It is not probable that there will be permanent benefits from the relief program until a larger share of the food supply for home consumption is grown by those now on relief. Furthermore, relief work should be coordinated with the crop-producing seasons. The time that should be devoted to growing crops is now devoted to relief work so that there is little opportunity to supplement relief income with home-grown foods.

The depression as felt in this county was little more than an aggravation of conditions that had been working for a long time. As previously pointed out, this county has suffered the severe drought in 1930 resulting in the disposal of nearly all livestock and depleted yields which made it necessary for the American Red Cross to feed a large part of the people, a tornado that did considerable damage to one of the better agricultural areas, a protracted strike of coal miners, a succession of dry years, and other similar factors coinciding with the almost complete cutting off of timber resources. A factor of importance, yet practically unmeasurable, was the cumulative effect of poor farming practices which has resulted in a depletion of inherent soil fertility and resources to such an extent that the county was unable to absorb the additional shock of drought.

Probably the depression was felt most severely by what remained of the lumber industry. The collapse of the lumber market forced practically all the small sawmills to cease operations and those who tried to hold on in the hope of rising prices were finally forced into bankruptcy. Lumbering had been the principal industry, reaching a peak during the years of the World War, and had been coasting along, as it were, on this momentum. Rapid price declines gave the final blow to what remained of this industry.

A few migrant sons and daughters returned home during the depression years which aggravated the problem, principally because

existing farms were divided. Migration from the area was stopped, thus causing a large proportion of young men to remain in the county during the years they would normally have migrated to industrial centers.

INSTITUTIONAL FACTORS RELATED TO LAND-UTILIZATION PROBLEMS

Tenure

In 1935, farms operated by tenants outnumbered those operated by owners for the first time in the history of the county, although more than one-fourth of the farms have been operated by tenants since 1880. According to the 1935 Census, full-owners accounted for 1,515, or 44.7 percent, of all farmers in the county, part-owners numbered 299 or 8.8 percent, and tenants numbered 1,577 or 46.5 percent (table 24).

Table 24--Percentage of all Farmers Who Were Tenants, Overton County, State of Tennessee, and East South Central States, 1880-1935

Area	Year							
	1880	1890	1900	1910	1920	1925	1930	1935
	Percent	Percent	Percent	Percent	Percent	Percent	Percent	Percent
Overton County	25.6	27.9	35.1	38.6	37.2	33.6	37.9	46.5
Tennessee	34.5	30.8	40.1	41.1	41.1	41.0	46.2	46.2
East South Central States	36.8	38.3	48.1	50.7	49.7	--	55.9	54.8

The heaviest concentration of tenants is in civil district number 9, an area which, with the exception of the valley of the West Fork of the Obey River, is held largely by a bankrupt mining company and by other speculative interests. Operators here are really not farmers, but are stranded miners who have turned to small patches to produce a little foodstuff. The land is free for farming purposes and houses are free to be lived in, the only restrictions are applied to cutting of timber and digging of coal. This policy seeks to keep the people in the vicinity of the mines, pending reopening. They can live in the company houses for one dollar a year, and keep the losses from destruction from being too high. The land is not fit for farming and little income can be made from it. The Census enumerates these people as tenants, but actually they are practically squatters.

The second highest concentration of tenants is in civil district number 4, an area of rough, worn-out lands from which a large number of owners have migrated. It is in this area, high in tenants

and croppers, in which the land is being converted from agriculture to forestry and recreational purposes by the United States Department of Agriculture.

Crop-share renting is the most common method of leasing. 42/ Of the 1,209 tenants in 1934, excluding croppers, only 6 paid cash rent. Crop-share renting is particularly well adapted to and usually fosters a single cash-crop system of farming. It provides very little opportunity for growing livestock or crops other than those with which rent is paid, and it necessitates the selling of most of the crops grown which aggravates the already large problem of soil depletion and erosion.

In this county in 1935, Census figures indicate that 31.4 percent of all tenants are related to the landlord. But the degree of relationship is so distant that it is not surprising that this county ranks tenth among the 95 counties having tenants related to landlords. This county has little influx of migrants, so the population is not likely to be diluted much from outside sources, and when an operator is a member of a large family he can hardly keep from being related either on his own side, or through his wife, to his landlord.

A study of the relationship of tenants to their landlords on a State-wide basis showed that the percentage of relationship was highest in the poor and isolated farming sections, and that the more fertile the agricultural land, and the less isolated the county, the lower the tenant relationship.

The mobility of tenants in this county is very high. In 1935 the Census reported that 41.8 percent of all tenants had lived on the present farm less than 1 year, 58 percent less than 2 years, and only 19.1 percent have lived on the present farm 5 years or more.

In the sample survey, 73.4 percent of the tenants had been on their present farms less than 10 years and 47.7 percent less than 5 years. On the other hand, 81.9 percent of the owners have been on their present farms continuously 10 or more years. Twenty-three percent of the owners, compared with 13 percent of the tenants, were born on the farms they are now operating. On the basis of this survey all owners had moved an average of 3.3 times, while tenants had moved 4.7 times.

Consequences of high mobility form the principal evil of tenancy. Tenants whose mobility is high are not likely to use improved farm practices, for they are not looking farther ahead than the end of the current year. The likelihood of moving prevents them from making improvements on the farm where they momentarily find them-

42/ Allred, C. E. and Briner, E. E. What is an Equitable Farm Lease? Department of Agricultural Economics, University of Tennessee, 1937. (Mimeographed.)

selves for they know that upon departure they can rarely obtain compensation for improvements left behind.

The relief roll of this county tells the story of farm families, particularly tenant families, who have been forced upon relief in recent years. The high correlation of tenancy and relief should again be emphasized. It was found that of the 864 rural people certified for WPA work and direct relief in Overton County for the year 1936-1937, 794, or 92 percent, were tenants and that the remaining 70, or 8 percent, were farm owners. Compared with this, of the 725 participants in the Domestic Allotment and Soil Conservation program, there were only 76 43/ tenants and croppers participating, so that 649, or 90 percent, were farm owners and operators. Thus there seems to be a definite relationship between tenure status and relief status. Another fact discovered was that the majority of those owners of farm land who are on relief come from one section of the county, a section where yields are low even in good years and the soil is peculiarly subject to drought.

The ideal of early settlers in America was a Nation in which farms would be operated mainly by owners. To gain these ends many innovations were made in the traditional European land-owning system and laws governing land ownership. But statistics show that the primary result has been to promote widespread ownership by non-farmers. Of the American institutional arrangements which have furthered the growth of tenancy, probably the most important is the holding of land as private property in fee simple absolute. In an unmodified form this system of tenure in rural areas has permitted, and now permits, the accumulation and transfer of real property with little or no restriction as to its use or disposition. Laws have been enacted which made land freely salable and easy to mortgage, and which gave the owner practically complete control over the use of the land. Our system of property inheritance allows property owners wide freedom of bequest. In the absence of a will, the laws provide for the division of the property among the several heirs. The death of a farmer who owns his land, therefore, may result in the disposition of his farm to heirs who have no other alternative than to rent the property. 44/

It is accepted that a serious decline in the general level of prices reacts more uniformly on agriculture than on most other lines of economic activity. Farm prices are usually among the first to decrease while at the same time taxes, interest, and similar charges are virtually fixed or decline slowly. Thus depressions have their effect not only in causing owners to lose their holdings, but in

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43/ Fifty-one of these contracts are at Crawford -- these people, essentially miners, are on mine property, upon which they pay no rent. The company retains the right to collect rent, but in practice permits the tenants to keep all of their crops in exchange for their services in protecting their timber and other property.

44/ See the Report of the President's Committee on Farm Tenancy, February 1937.

making it impossible for laborers and tenants to accumulate operating equipment and funds for making down-payments on farms. Then there is always fear which destroys the incentive for long-term investments and seriously disrupts ordinary channels of credit. The increasing population (through the accumulation on farms of rural young people who would ordinarily find employment in the city and an augmented movement of city dwellers back to the land) has increased the demands for land to such an extent that the increases in farms could take place only by reducing the size of existing farms.

Transportation, Markets and Trade Areas

In previous years the town of Livingston was a far more important trade center than it is now. It enjoyed this position solely because it was the only railroad shipping point within a radius of 25 miles to the east and 50 miles to the north and west. In the days before truck transportation, Livingston was said to be the second largest poultry-shipping point in the State. Farmers brought their chickens and eggs from the wide area of Clay, Pickett, and Fentress Counties and from localities in Kentucky. 45/ Until the railroad was abandoned in 1931, it was a common sight in Livingston to see long lines of wagons heavily loaded with hens and eggs. The highest single shipment reported was that of one firm which shipped 26 cars in 2 days. Livingston was also a center for shipping of lumber, as well as poultry and eggs.

Until 1906, the nearest railroad shipping point in this entire area was at Algood, a point just to the south of the Overton County line. This was on the regular line built by the Tennessee Central Railroad in 1896. Transportation has always been a great problem in this area and has been one of the main factors for its relative isolation from trade routes and urban development. Goodpasture 46/ summed up the situation in 1897 as follows:

> "It is possibly the most imperfectly known and least appreciated portion of the State, owing to its inaccessibility, the rest of the country being many years in advance of it in matter of transportation. The child born here fifty years ago was taught to expect a railroad through the Mountain District before he reached his majority, and in his turn held out the same delusive hope to his own children."

When the railroad reached Algood in 1896, it became profitable to have the lower priced lumber hauled to this point, and it opened up the southern section of the county for timber production. At first only the logs were hauled, as no commerical sawmills had been established in the county. But as it became profitable to saw the timber

45/ Information from A. J. Mofield & Company, Livingston, Tennessee.
46/ Goodpasture, A. V. and Goodpasture, W. H., op. cit.

and haul the cut lumber to the railroad, pressure was exerted by lumber interests to have a spur line run from Algood up to this new virgin-timber area. The county finally built the railroad in 1906 at a cost of $25,000. The principal source of revenue was always from lumber freight. Availability to market encouraged poultry production to such an extent that it soon became an important source of income. The collapse of the lumber market dealt the final blow to railroad revenues in the late 1920's. Competition from trucks also severely reduced the railroad income, and in 1931 it stopped operating altogether, and the tracks were torn up in 1935. Incidentally, the bond issue of $25,000, which financed the building of this road, became due in 1937. All that remains now is the roadbed with rotted ties without rails, and the county at present shows no disposition to pay the bonds, although, of course they were issued against the tax-paying ability of the county.

The use of motortrucks has also changed the complexity of the wholesale distribution system. Formerly, groceries and other commodities came to Livingston by rail and were distributed there by wholesale jobbers. Now the small storekeeper has his supplies delivered right to his store by a wholesale chain, operating from Cookeville in Putnam County. One wholesaler in Livingston acts as a jobber for certain types of commodities. Quick and flexible transportation facilities have led to hand-to-mouth buying policies. A delay of a day or tow in buying commodities does not seem to concern people in the county and it enables stores to operate on a smaller capital outlay.

The collapse of the railroad has had a marked influence upon the importance of Livingston as a trade center. The most marked effect, naturally, is its reduced importance as a transportation center. Formerly, wagons brought all the produce and lumber to Livingston to be shipped; trucks now go into the hinterland. The cutting out of timber around Livingston necessitated going farther and farther back into the forests. Trucks began to haul this timber at first, but soon the portable sawmills went to the woods and trucks hauled out the cut timber. Once the lumber was loaded on trucks at the sawmills back in the woods, it could be hauled to Algood just as cheaply as it could be transferred from trucks to flat cars in Livingston and then hauled. Trucks have also enabled lumbering operations to be carried on in the heretofore isolated sections of the county, and the cut lumber is carried in a more direct route to railroad or consuming centers.

This dispensing of the wholesale distributing system has had a similar effect upon the flow of commodities to market. Eggs are used as a medium of exchange probably more than cash. This is particularly true in the rural stores. 47/ The same trucks that deliver the whole-

47/ An experience believed typical, illustrates this point. One afternoon in about an hour's conversation with a merchant, 10 customers came into the store. Nine of the purchases were made with the exchange of eggs and a boy had an extra 2 cents with which he bought candy. The other cash purchase was a 10 cent plug of tobacco, made by a man on the way home from WPA work.

sale goods pick up the eggs and carry them to Cookeville or other large wholesale centers. Chickens are picked up in the same way, and trucks go right to the farms for larger shipments. All livestock moves in this way now, as do practically all the commodities sold. In comparison with what used to be brought to Livingston for sale or trade, only a very small proportion of the total goods is now brought to Livingston. For this reason, it is impossible to give figures as to the quantities of goods which flow into and out of this county.

An indication of how marked is the decline in produce sold through Livingston can be obtained from the fact that the same wholesaler who sold the 26 cars of poultry in 2 days in 1926 shipped only $5,000 worth of eggs and poultry combined in 1936. The other dealer, established but 4 years in Livingston, sold $8,834 worth of hens and eggs in 1936.

Overton County is in the Nashville trade area. Livingston is about 100 miles from Nashville, 132 from Knoxville, and 131 miles from Chattanooga. The mountains on the eastern side of the county and the Plateau are effective barriers to trade to the other cities even if Nashville were not the attraction it is because of its size.

Until 1929, nearly all rural stores carried their customers on charge accounts. Conditions since then have become so bad that the surviving stores operate strictly on a cash or egg basis. Since 1929, wholesalers have not been so lenient in credits, and this has had its effect on retail credits as well as the hand-to-mouth buying policies of the stores.

The relief situation has even changed the time-honored custom of using Saturday as the principal business day. It is Thursday now, because relief checks are distributed every second Thursday. This business amounts to approximately $12,000 a month, and is a large percentage of the total amount of trade. However, Saturday is still the main day to go to town, although the volume of business done on this one day is not so large as formerly.

Cookeville, having a population of approximately 4,000, is the marketing center for Overton and the surrounding counties owing to its geographical advantages. Its primary importance as a shipping center comes from its location on the main line of the only railroad in this area. It is also on the main highway leading east and west.

Taxation

One of the striking facts about the tax system in Overton County is the high proportion of the tax revenue that is derived from rural real property. The assessment on rural real property in this county in 1936 was 78 percent of the total. The depression has strained this tax almost to the breaking point, but perhaps a considerable share of the blame for tax delinquency should be laid at the door of the collecting machinery.

Source and use of tax funds

The tax base of Overton County has declined steadily in recent years, dropping 25 percent from 1929 to 1936. There was a decrease of nearly 8.5 percent in 1930 from the 1929 base of $3,519,230. The tax base in 1936 was $2,652,572, or $146.72 per capita (table 25).

Land bears a major part of the tax burden in Overton County. As shown in table 26, rural real property is assessed for more than three-fourths of the total, town lots from 12 to 15 percent, utilities around 6 percent, and personal property about 1 percent of the total. According to county officials the ratio of assessed to true value is about 50 percent.

The $2.22 county tax for 1936 was levied for the following purposes:

General county fund	$0.30
Elementary school	.50
High school	.50
Highways	.05
Special floating debt	.82
Interest	.05

An additional 8-cent State tax was collected.

Table 25.--Assessed Value, Tax Rate, and Tax Levied, Overton County, 1929-36

Year	Assessed Value	Tax rate 1/	Tax levied
	Dollars	Dollars	Dollars
1929	3,519,230	2.30	80,956.56
1930	3,221,178	2.39	76,222.55
1931	3,056,122	2.45	80,477.52
1932	3,004,392	2.32	69,450.42
1933	2,894,920	2.32	66,922.85
1934	2,829,239	2.32	72,596.16
1935	2,685,730	2.32	62,098.56
1936	2,652,572	2.22	58,307.10

1/ Does not include State tax.

Extent and significance of tax delinquency 48/

Tax delinquency in Overton County has been a real problem since

48/ Based on an unpublished report prepared by D. H. McVey, Assistant Agricultural Economist, Bureau of Agricultural Economics, U. S. Dept. of Agr. (Raleigh, N.C.)

1930. In 1933, when total taxes delinquent reached the highest amount on record, there were 109,636 acres, 49/ or 43.8 percent, delinquent out of approximately 250,000 assessed acres. The amount delinquent was $24,083, or 35 percent of the levy. Table 27 gives the tax-delinquency situation from 1930 to 1935 inclusive.

Table 26--Percentage of Total Assessment on Rural Real Property, Personal Property, Town Lots, and Utilities, Overton County, 1933-36

Year	Percentage Total Assessment on				
	Rural Real Property	Personal Property	Town Lots	Utilities	Total
	Percent	Percent	Percent	Percent	Percent
1933	78.3	2.6	11.8	7.3	100
1934	80.8	1.2	12.1	5.9	100
1935	77.4	1.1	15.5	6.0	100
1936	77.7	0.9	15.4	6.0	100

Table 27--Total Tax Levy and Tax Delinquency, Overton County, 1930-35 1/

Year	Tax Levy	Amount of tax delinquency	
		Total	Percentage of levy
	Dollars	Dollars	Percent
1930	82,664.90	6,484.46	7.8
1931	80,477.52	17,488.20	21.7
1932	71,853.93	20,195.56	28.1
1933	69,253.78	24,082.64	34.7
1934	74,859.55	18,956.36	25.3
1935	64,247.14	20,832.04	32.4

1/ Delinquency is the uncollected portion of the real estate tax levy for the given year, 17 months after the due date, or 12 months after the delinquency date, and is the amount returned to the Clerk or Master for collection. See table 28.

To obtain some information on the character of tax delinquency, a study was made of a sample of 120 properties that were delinquent in 1930. A tabulation was made of tax payments on these properties from 1930 to May 1, 1937. These parcels contained 10,534 acres, assessed at an average of $7.13 per acre in 1930. The $1,854.48

49/ Exclusive of town lots and tracts of less than 10 acres.

reported delinquent is slightly less than the taxes levied on the property ($1,945.22), indicating that a few partial payments had been made before the taxes became delinquent.

Table 28--Redemption by Years of 120 Properties in Overton County Delinquent for 1930 Taxes, Together with Tax and Acreage Involved

Year paid	Number of tracts redeemed	Redemption payments made: Amount paid	Percentage of total tax	Amount redeemed: Acreage	Percentage of total
	Number	Dollars	Percent	Acres	Percent
1932	4	104.89	5.7	554	5.3
1933	11	221.19	11.9	1,622	15.4
1934	5	56.78	3.1	360	3.4
1935	12	368.58	19.9	1,314	12.5
1936	10	101.76	5.5	853	8.1
1937	2	15.74	.8	75	.7
Unpaid May 1, 1937	76	985.74	53.1	5,756	54.6
Total	120	1,854.48	100.0	10,534	100.0

Seventy-six of the 120 tracts were still delinquent on May 1, 1937 (table 28). Only three tracts were delinquent for 1 year only, and all except six were delinquent more or less chronically. Of the 120 tracts which were delinquent in 1930, only three of them were delinquent for one year during the period 1930 to 1935, and three other tracts were delinquent only two of the years in the same period. Therefore, 114 of the tracts were delinquent three or more years in the period covered.

A small number of the owners (3 to 6) may have had temporarily poor incomes for a year or two, but sufficient incomes in all other years with which to pay their taxes.

If the results of the analysis of the 120 sample tracts are applied to the county, there were 32,500 acres 50/ delinquent for taxes in 1930. This represented about 13 percent of the total. It should be understood that this acreage was not current delinquency, but was the amount of the 1930 delinquent acreage turned over to the court for proceedings.

50/ The calculated figure would be 36,884 acres, which is probably a little too high since the delinquent list included some taxes on town lots.

Assuming that 32,500 acres were delinquent for 1930 taxes, and that 75.9 percent of this total was still delinquent January 1, 1935 when the first moratorium expired 51/ (as was true in this sample), the acreage delinquent on that date and thus subject to foreclosure was 24,667 acres.

Table 29--Amount and Acreage Involved in Uncollected Taxes in Overton County as of December 31, 1936, and the Acreage Still Delinquent May 1, 1937 and Subject to Foreclosure for 1930-35 Levies

Year	Amount of taxes uncollected	Percentage of total	Estimated acreage involved	Acreage still delinquent May 1, 1937 and subject to foreclosure 1/
	Dollars	Percent	Acres	Acres
1930	4,158.47	5.5	32,500	17,745
1931	9,158.80	11.4	85,000	28,400
1932	10,031.57	14.4	95,000	15,585
1933	12,014.90	17.9	109,636 2/	19,165
1934	21,445.10	29.5	90,000	--
1935	21,204.71	34.2	96,000	--
Total				80,895

1/ Duplicates deducted.
2/ Actual tabulation.

Table 29 gives for 1930 to 1935 the balance of each levy uncollected as of December 31, 1936, percentage of original levy, estimated acreage involved, and the acreage still delinquent May 1, 1937 and subject to foreclosure.

Owing to a series of moratoria none of the property was subject to foreclosure until after October 1, 1937, when 80,895 acres could be foreclosed unless taxes were paid in the meantime. Some undoubtedly were paid, but probably no large amount, for the landowners have learned from past experience that the likelihood of losing their land because of unpaid taxes is very remote.

51/ The moratorium took effect March 20, 1933 and expired December 31, 1934. It provided that taxes for any and all years, 1920 to 1931 inclusive, might be paid without penalties or interest if the amount of the original tax, together with such attorney's fees and costs as had accrued, were paid prior to January 1, 1935. The Act also stopped all court actions and the accrual of any further court costs. Moreover, it extended the period of redemption of property sold for taxes and acquired by a county or municipality until January 1, 1935. (See chapter 22, Session Laws of 1933.)

Educational System

The educational system of Overton County is the result of the educational policies of the State which prevailed until recently. The policies delegated to the counties the responsibility for providing elementary and secondary education. Obviously grave inequalities in educational opportunities have developed, the effects of which have been counteracted to a slight extent by an equalization fund distributed by the State. Thus far, the only equalization of school opportunity realized is that each school is assured a teacher for an 8-month term, the fund supplying the difference in salary received from the county and the amount contracted for.

There are 60 one-teacher schools, 16 two-teacher schools, and 5 three-teacher schools in the elementary grades, and 4 high schools which have 5 or more teachers, in the schools of the county. There are 85 schools in the county, of which 75 are frame buildings, 3 are of stone, and 8 are of brick. Only the school buildings at Livingston have inside toilet facilities, running water, and a central heating system. All the others are heated by stoves in the rooms.

There are two departments of vocational agriculture, one located at Alpine and one at Livingston.

All of the early educational institutions were privately endowed or subsidized. Fiske Academy, founded in 1810 at what is now Hilham, was the first institution for girls south of the Ohio River. The present high school at Hilham occupies the site of the original school and to this day is called Fiske Academy to commemorate the name of the founder. In 1821 the Alpine Academy was founded by a Presbyterian minister at Alpine. It was later developed through aid from the Presbyterian Mission Board into what in present times is known as a preparatory school. It now receives part of its funds from the county since it is a high school, although the personnel is still employed and paid in part by the Mission Board. Livingston itself did not have a high school until the Mission Board of the Progressive Christian Church built the Livingston Academy in 1910. The Board maintained it until 1937. All of these academies maintained dormitories for those pupils who lived at a distance, and only since the roads have become passable has bus transportation been used.

The county has gradually increased its contributions to these academies; in 1936 it gave $2,800 to the Alpine Academy and $10,810 to the Livingston Academy. The Mission Board retains control only of the building at Alpine, while operating expenses and teachers are paid by the county. This academy is still primarily a missionary school, the county paying only a part of the salaries of the teachers.

Probably the most important factor bearing upon educational opportunities is that of the ability of the county to finance its public functions. A study of the fiscal capacity of all Tennessee

counties which was made in 1936, 52/ showed that of the 95 counties in the State, Overton ranked 76th in public finance functions. Areas having favorable soils and topography in general have a comparatively high financial capacity, while the economic influence of cities has a direct bearing upon the finances of the county. As previously stated, the soils of Overton County are of low fertility, and the sole urban center, Livingston, does not have much direct bearing upon the finances of Overton County.

Of the $79,100 spent in this county for educational purposes in the scholastic year 1936-37, $58,525 was supplied by the State, and $20,575 was appropriated by the county. The county thus contributed $4.15 per pupil enrolled. The total sum represents an expenditure of $15.96 per pupil enrolled in all the schools, or $24.59 per pupil in average daily attendance. Of all the expenditures, 81.2 percent was for instruction, illustrative of the condition which usually prevails when revenue for school purposes is meager and it is necessary to make a great effort to pay the salaries of the teachers. Obviously, an allocation is made first for the superintendent, expenses for members of the school board, and teachers' salaries; the remaining amounts are distributed in the best way practicable among the other items of the school budget. Consequently, teachers have to resort to entertainments to raise funds to carry on some of the activities of the schools. At Rickman, for instance, two buildings have to be heated and maintained on $100 a year. Breakage is a large item in maintenance expense, since children disregard the shatterable qualities of glass. School desks are repaired infrequently and the buildings suffer from the occasional removal of boards for kindling, and neglect in general.

The school system is administered by a school board of 7 members, elected by popular vote from the 7 school districts, each member elected for a term of 2 years. The County Superintendent of Schools is elected to office by popular vote and his functions are: (1) to supervise the schools of the county; (2) to act as secretary to the school board, although he has no vote; (3) and because of his supervisory position, to recommend teachers for the various schools to the school board.

Whenever economizing is to be done, or salaries allowed to lapse, school systems suffer first. Turnover in teaching posts in this county is high because of low pay and poor teaching conditions. As would be expected, women teachers outnumber men teachers nearly three to one. Women teachers are located principally in the 1-teacher schools, near their homes, and thus have low living costs. Practically all of the men teachers are in the high schools.

52/ Allred, C. E., et. al., Comparative Ability of Tennessee Counties to Finance Their Governmental Functions. Cooperative Plan of Rural Research: Tennessee Agricultural Experiment Station, Federal Works Progress Administration, and Tennessee Welfare Commission, 1936. (Mimeographed.)

The schools with three or more teachers seem to enroll a higher number of pupils, primarily because they are in areas of greater concentration. Much of the inefficiency of the educational system in the county seems to be due to the 1-teacher schools because of low revenues, low salaries, lack of training of teachers, and indifference to standards of education on the part of the scattered settlers in 1-teacher school areas. An obvious solution, therefore, would seem to be consolidation of schools. Sentiment against the transportation of elementary school children has been strong for three reasons: (1) poor roads, over which it would be absolutely impossible to transport pupils a considerable time of the school year; (2) reluctance of parents to have their children go far from home; and (3) expense of operations, which at the present time have to be borne by parents.

A beginning has been made in bus transportation of pupils. As there are only four high schools in the county, it is necessary for pupils to be transported to them. There are 6 bus routes at present. High-school students pay $1.50 per month, and any elementary grade pupils who wish to commute on these busses are carried free of charge. The attitude of parents toward consolidated schools and transportation is changing. A petition is now before the board from one school district to have all the children taught at a consolidated school. The board has let the demand come from the communities rather than encourage school consolidations through its policies, largely because no money savings are expected. Establishment and maintenance of higher educational standards possible by consolidation are still ephemeral and theoretical; thus action is not so rapid as if a financial saving were involved. Thus far, each bus averages 60 miles a day, hauling an average of 50 students. Busses are owned by the county as this system has been found to be cheaper and safer than to let contracts for the service. The cost of operation varies between $60 to $70 a month, which is about the same as the average salary paid one teacher.

SUGGESTED POLICIES AND PROGRAMS FOR READJUSTMENT

Retiring Nonagricultural Land from Agricultural Uses

There are few farms, if any, in the county that do not have some hillsides, eroded fields, or other places that could be put to a better use by planting to trees. This is an individual farm-management problem, of course, but the course of action to be taken by farmers needs to be guided by means of an educational program. The present work of the Agricultural Adjustment Administration and the Agricultural Extension Service deals with this problem. The present farm-forest area should be maintained, and even increased as rapidly as the farmers will voluntarily do so, with the advice and supervision of the Extension Service.

Based on the reconnaissance land classification map, (figure 4), 136,851 acres, or 48 percent of the total land area, should be in forests, in addition to the woodland on farms. Of the land that should

be forested, 33,018 acres, or 11.6 percent of the total land area, is rugged, badly eroded land that should never have been cleared, or land that is now primarily forested but has scattered clearings for which the cost of governmental service is too great to warrant leaving it in agricultural production.

Another area of 93,503 acres, or 32.8 percent of the total land area, is now practically all forested and should so remain. It was once in excellent virgin-timber growth, but after being cut over has been allowed to come back in poor-quality second-growth. The topography is very rough in most places, and where level the soil is thin and frequent rock exposures make this land unsuitable for farming. Even at the present time there are relatively few clearings and the agricultural production is of minor importance.

The Standingstone Forest Project is a beginning in the conservation of the resources of this county. The United States Department of Agriculture has already purchased and has under development more than 7,000 acres of rough, eroded land that is unsuited to agriculture. Thousands of acres of similar land adjoin this project which undoubtedly should be incorporated into this publicly-owned area. Several tracts are needed to block together the lands already purchased. The project should expand to include the area shown as land Class VI in figure 4. Indications are that it should also extend into Clay and Jackson Counties, particularly Clay.

Considering the failure of private ownership to fulfill the responsibilities, public ownership is probably the surest guarantee of proper management, and will be the most effective means of correcting the evils and maladjustments of private ownership for the 93,500 acres of Class VII land in the southeastern part of the county. A program of land acquisition, supported by rural zoning, should be worked out as speedily as possible. It will be necessary to prepare a model working plan which will involve both a detailed examination of existing forest conditions and a determination of the size and distribution of forest communities that can permanently depend upon the forest resource and a part-time agriculture for a livelihood. Forests cannot be handled without men, and to have proper forest land use people must live within or about the forest. Small forest communities can be developed in Overton County in locations where adequate provisions are now or can be made for travel, schools, and other necessities of life. Several areas are suitable for community development. The lands nearby can be utilized for gardens and part-time farming, and some areas within the forests may be cleared and developed into pasture lands to be used by the forest workers for milk cows and a few other livestock.

Recreation and forests are practically inseparable. The value that may be derived from these areas when used for recreational purposes, preservation of wildlife, and for watershed protection cannot be measured in money. The transformation of the countryside from

idle, eroded lands to forests is a benefit not to be measured in dollars, although the lumber that will be available at some future time is a tangible product. Ample hunting and fishing grounds would yield considerable revenue from licenses if the results of other States, notably Pennsylvania, can be duplicated. Recreational facilities are being provided on the Standingstone Forest Project. Several cabins have been constructed and a dam has been built impounding a 60-acre lake to be used for swimming, boating, and fishing. Much of the southeastern part of the county should be considered for recreational advantages. It has the rugged topography, deep gorges, altitude (approximately 2,000 feet), and forest cover which would make it desirable for rescreational purposes. This area has also been proposed as a supplement to the present project of the United States Department of Agriculture despite the fact that it is separated by the width of the county.

Reorganization of Existing Operating Units in Agriculture

The results of this survey indicate that the majority of the farms in Overton County are too small, particularly in land Class IV areas. In land Class II, only 17 percent were smaller than recommended; in land Class III, 74 percent were found to be smaller than recommended; but all of those in land Class IV were smaller than recommended. Apparently the solution to this problem will be the consolidation of holdings, together with the relocation of some families. This may be accomplished by properly directed credit assistance for the purchase of more land, livestock, and equipment; by an agricultural program so designed that only economic-sized farms can participate in the conservation payments; or by Government purchase, reorganization, and resale.

For those farms that are economic in size, changes in present farm practices are desirable. Suggested changes for practically all of the economic-sized farms include the following:

(1) Producing more food for home use, particularly garden truck.
(2) Keeping of more milk cows to furnish milk and butter.
(3) Planting an orchard and berry bushes.
(4) Avoiding the selling of grains and hay as much as possible, and instead, marketing these products through livestock.
(5) Using lime, phosphates, legumes, and manure to build soil fertility.
(6) Adopting a definite soil-building crop rotation.
(7) Reseeding and improving pastures.
(8) Keeping more livestock, especially beef cattle and sheep.
(9) Keeping more poultry and improving the flocks.

The cooperation of educational and banking institutions will be necessary to bring about some of these changes. Many of the farmers realize that they need to use lime and fertilizer, that they need to improve their pastures, and that they need more livestock. They also realize that money is needed. A liberal, but practical, credit policy must be evolved to meet this situation. It must be remembered that

the farmers in this county were forced to dispose of their livestock in 1930, and have been unable to buy more.

The problems of soil conservation are so diverse and the needs so great that it will take many conservation practices to rebuild the land to its former productive capacity. Before much advance can be made the terrific pressure of the population upon the land will have to be lessened, much of the land now in crops will have to be retired or put into less intensive uses, and the agricultural producing systems in general will have to undergo changes. If more land is devoted to grass thus enabling the production of livestock, if less of the cultivated land is devoted to corn and more put into soil-improving leguminous crops, if adequate winter cover crops are planted, and if adequate rotations are followed, it is reasonable to believe that returns from agriculture will be materially increased.

Alleviation of Population Pressure

The young people in Overton County are migrating to other areas and this movement should continue, especially from the submarginal areas. If poor lands are bought by the Federal, State, or local Governments it might be wise to grant the older residents a right to live on the land the rest of their lives. A policy of this kind would give the younger generation time to migrate to other areas and allow the older people to remain in surroundings to which they are accustomed. All of the people on the submarginal lands should be given an opportunity and should be encouraged to relocate on better lands. This does not mean that all should be moved at the same time, but that financial aid should be readily available for all those who wish to locate on land adapted to farming whenever they voluntarily decide to do so.

To relieve the population pressure in the agricultural areas -- that is, areas where the farms are now too small -- perhaps an agricultural program can be designed that will encourage a portion of the farmers now owning small farms to sell to their neighbors, and then to buy an economic-sized farm elsewhere. Then those remaining in the county would have economic units, and of course with adequate supervision those going elsewhere would buy only economic units. This policy would also require financial aid and supervision, since the farmers would necessarily have to expand their investments and change their type of farming.

As far as can be learned there are no areas of agricultural land suitable for more intensive use than at present exist. If the scale of the acreage required for the support of a family at a reasonable standard of living is used, then there are more families in all sections of the county, except land Class II areas, than the land is capable of supporting. It is doubtful if land Class II areas can be used more intensively than at present.

By using the estimates of the supporting capacity of the various types of land it is possible to secure an estimate as to the total number of families that can be supported at proper income levels

on the lands of the county (tables 30 and 31) and this will give some indication of the magnitude of the problems facing this or any other county that does not have sufficient resources to support a dense population.

Table 30--Estimated Range of Acreage per Farm Necessary for Proper Support of a Farm Family by Land Classes

Land class	Necessary acreage per farm		
	Minimum	Average	Maximum
	Acres	Acres	Acres
II	75	100	125
III	125	160	200
IV	200	250	300

Table 31--Estimates of the Total Number of Families that the Agricultural Land of Overton County Can Adequately Support

Land class	Acreage in each class	Number of families that can be supported by each class		
		Maximum	Average	Minimum
	Acres	Number	Number	Number
II	12,605	168	126	101
III	58,826	471	368	295
IV	76,646	383	307	255
Total	148,077	1,022	801	651

In Overton County there are 148,077 acres suitable for inclusion in full-time farm-operating units. The use-capability of these lands varies widely. There are 12,605 acres of good agricultural land which is moderately subject to erosion or has slight fertility problems. This land is suitable for a general diversified type of farming in a 3-4 year rotation. Probably 75 to 125 acres are needed to support a family.

There are 58,826 acres suitable for an extensive type of agriculture with major emphasis on livestock. Most of the cleared land in this class is of low quality, is hilly or readily susceptible to erosion, and requires a longer rotation than the better lands described above. Fifty percent or more of the average farm may be in

forest. It is estimated that 125 to 200 acres will be required to support a family.

Another class of land suitable for full-time farming operations is primarily adapted to grazing, largely because the land is too hilly or infertile for cultivation. There is some tillable land in these 76,646 acres but most of it should not be cultivated oftener than once in 7 to 10 years. Some of the steeper slopes should be reforested. Generally 200 to 300 acres will be needed to support a family.

The 12,605 acres designated as suitable for general diversified farming will support adequately from 101 to 168 families. Using the average of 100 acres per farm, these areas will support 126 families. The 58,826 acres of medium-quality land will maintain from 295 to 471 families, with an average of 368 families. It is estimated that the 76,646 acres of land primarily adapted to grazing will support from 255 to 383 families, with an average of 307 families. This makes a total ranging from 651 to 1,022 full-time farm units, or an average of 801 farms. 53/

The present pattern of farming operations is in striking contrast to that which is considered economically feasible. The largest average size of farms in the county is in areas of good land (Class II). Few, if any, of these farms are too large, but evidence indicates that the majority of the farms in other areas are too small. In a sample of farms surveyed for this report, all of those in land Class IV were smaller than the desired minimum, 74 percent in Class III were too small, and even in Class II areas 17 percent were smaller than recommended.

Full-time farming operations in Overton County should support decently from 3,250 to 4,000 people. There seems to be a surplus farm population in all areas except Class II land. The farm population of the county was 15,179 in 1935. This figure includes all people living on farms whether they had anything to do with the farm operations or not.

Part-time farming combined with forestry employment may offer some possibilities, but this subject can be dealt with only generally. Practically all of the timber resources are gone, and it will require a long period to restore the forests to a sustained-yield basis. In the county there are about 137,000 acres of land which are now, or should be, in timber. This does not include woodland on farms. Most of the present timber stand is second growth. Scattered throughout the forest lands are small tracts suitable for subsistence or part-time farming. Througout the county there are now approximately 200 part-time timber workers. Under proper management it is estimated that the timber lands and part-time farming may eventually support

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53/ The "averages" used here are not exact since they are calculated from size of farms indicated in table 30, which are only approximate averages.

300 or more families. At present, several types of operating units are distributed throughout the forest areas. Some men are working in timber and others are working at whatever they can find to do. Many are on relief. Regardless of the source of the major part of their present livelihood, which is meager, more people are in these areas than the resources can maintain at a decent standard of living.

The mining situation needs expert study, but our brief inquiry and analysis of available data indicates that there are only limited possibilities for employment, on either a full-time or a part-time basis. More than 300 men were employed by the mines in 1930, but since 1932 less than 25 men have been employed. The others are dependent on relief and subsistence farming. A liberal estimate of the number of families which mining may be expected to support would be 100 families.

Other employment such as service establishments, which may or may not be combined with part-time farming, may be expected to provide a livelihood for about 800 families. This figure is an estimate based on the 1930 employment in automobile repair shops and filling stations, street maintenance, postal service, telephone, banking, wholesale and retail trade, hotels, restaurants, and other industries and services classified by the Census.

To summarize the above paragraphs, it is estimated that all the resources of Overton County are sufficient to support adequately about 2,000 families or 10,000 people. The 1930 population was 18,079. The surplus population is located largely on small farms in poor-land areas, and in the mining section of the county.

A Change in the Tax System

With the present tax system the easiest procedure for the local officials to follow is to let each individual do as he pleases, which is exactly what is being done. The present situation demands a different treatment. There has been tax delinquency in good times as well as during the depression, on the part of people well able to pay as well as those unable to pay. The faulty collection system can be blamed for this. Observation and data in Overton County indicate that there is no close relationship between tax delinquency and good and poor farming areas, although there may be a close connection between delinquency and high taxes accompanied by declining incomes. It is important that taxes be collected promptly, consistently, and without discrimination.

The general property tax, with assessments and rates applied to farm-forest land in Overton County, is unfair and inequitable, and discourages sound private forestry. In other words, it operates to prevent proper utilization of the land by encouraging rapid cutting of timber needed for sustained production.

Consolidation of Schools

The State equalization law was conceived in the spirit of a liberal policy -- it is the function of the State to give all of its children an equal school term. By this policy the wealthier areas contributed to the operation of unnecessary schools in the impoverished areas. Broadminded citizens willingly supported this policy, but experience indicates that efficient management of schools and better opportunities for the children might be greatly promoted by consolidation of schools. Instead of maintaining 85 schools it would probably be better to develop 10 or 15 school centers. The schools should offer more instruction in vocational agriculture, home economics, and commercial subjects in addition to academic training.

Alleviation of the Tenancy Problem

The recently enacted Bankhead-Jones Tenant Act is a beginning in the solution of this problem. It sponsors an experimental program, and for the present, not many tenants will be affected. In addition to this and related rehabilitation programs, some measures should be adopted to improve lease contracts and landlord-tenant relationships. Perhaps the State should give consideration to legislation including provisions for (1) written leases, (2) removal of improvements made by tenants when capable of removal at termination of lease, (3) termination of lease only after due notice given 6 months in advance, and (4) after first year, payment shall be made for inconvenience or loss sustained by either party by reason of termination of lease without due cause. Further study, which is needed, might bring to light other recommendations for this county. 54/

Development of Industry and Mining

Agriculture in Overton County needs the supplementary employment which industries can afford. In fact, the standard of living of the farm population cannot be raised appreciably unless pressure on the land is lessened. Employment in the forest and wood-working industries, as well as in the coal mines, has been available to some. It is desirable to promote such new industries as will make more complete use of Overton County's coal and wood-products. The utilization of the steeper farm areas as wood-lots and the development of wood-using industries would add to the farm revenues. The development of local industry would not only employ labor, but would also tend to create a local market for farm products. There is an ample labor supply and plenty of fuel in Overton County to attract industry, but these advantages are offset to some extent by inadequate railroad facilities and unfavorable freight rates.

Mining should be given careful consideration by a competent

54/ See the report of the President's Committee on Farm Tenancy for other recommendations.

authority. The general situation has been discussed in other sections of this study.

There is a possibility that this area could develop a cold-pack fruit industry and get in on the "ground floor", particularly with strawberries and dewberries. It is a possibility worthy of exploration and experimentation.

Adoption of Rural Zoning Ordinance

According to a recent study 55/, rural zoning offers definite possibilities as an instrument for improving land use in Tennessee. Although the study was conducted in Hamilton County, Tennessee, the land-use conditions there, particularly those to which rural zoning is adapted, are not unlike those in Overton County. The people of Overton County would do well to consider rural zoning along with other measures. Such measures would include more stringent enforcement of tax foreclosure laws which now place little penalty on delinquency. Integration of administration of tax title lands with a program of zoning and the Federal purchase program now under way would be desirable. All of the submarginal land in Overton County and other counties throughout the United States cannot be purchased by the Government; some of it can be acquired, however, by counties taking tax title, and other adjustments can be effected through rural zoning. Before rural zoning is adopted in Overton County, it will be necessary thoroughly to acquaint the people with its principles and its adaptability to their problems, to obtain enabling legislation authorizing the Quarterly County Court to adopt a zoning ordinance, and to make further studies as a basis for drafting the details of a zoning ordinance and for locating district boundaries.

Formation of a County Agricultural Planning Committee

A county agricultural planning committee, composed largely of farmers, with the County Agricultural Agent as Executive Secretary, was recently established in Overton County. Participation by these farmers in the formulation and administration of the agricultural programs affecting land use in the county is a great step forward in our democratic method of government. This committee has a tremendous task ahead of it, and if a workable land-use plan is developed and adopted, the leadership must come from within the county and there is no better place for such leadership to rest than in the county agricultural planning committee.

55/ A Study of the Possibilities of Rural Zoning as an Instrument for Improving Land Use in Hamilton County, Tennessee. Bur. of Agr. Econ., T.V.A., Tenn. State Plan. Comm., and Hamilton Co. Reg. Plan. Comm., Feb. 1939. (mimeo.)

The very nature of the land-use problems in Overton County, as in other counties throughout the State and the Nation, demands a close integration of many programs. Farm people, as well as State and Federal officials, must take part in the planning or program-making process. Conclusive decisions should be based upon the combined judgments of researchers, officials, and farmers. Although the possibilities of land-utilization research in Overton County have not been exhausted, the results here set forth should aid the county agricultural planning committee materially in the development of a constructive program looking toward the solution of some of their land-use problems.

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